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BY ROBERT RIDGWAY

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CONTENTS.

PAGE

Order GALLINÆ—The Gallinaceous Birds..... 3
Suborder Phasiana, 3.—Family Phasianidæ (The Pheasants), 3.—Family Tetraonidæ (The Grouse, Partridges, and Quails), 6.

Order LIMICOLÆ—The Shore Birds..... 18
Family Aphrizidæ (The Turnstones), 20.—Family Charadriidæ (The Plovers), 22.—Family Scolopacidæ (The Snipe Family), 32.—Family Recurvirostridæ (The Avocets and Stilts), 74.—Family Phalaropodidæ (The Phalaropes), 77.

Order ALECTORIDES—The Cranes, Courlans, Rails, Gallinules, and Coots..... 82
Suborder Ralli, 83.—Family Rallidæ (The Rails, Gallinules, and Coots), 83.—Family Gruidæ (The Cranes), 98.

Order HERODIONES—The Herons, Storks, Ibises, etc.....101*
Suborder Ibides (The Spoonbills and Ibises), 101*.—Family Plataleidæ (The Spoonbills), 102*.—Family Ibididæ (The Ibises), 106*.
Suborder Ciconiæ (The Storks and Wood Ibises), 113*.—Family Ciconiidæ (The Storks and Wood Ibises), 113*.
Suborder Herodii (The Herons and Boatbills), 116*.—Family Ardeidæ (The Herons), 117*.

Order ANSERES—The Lamellirostral Swimmers..... 102
Family Anatidæ (The Swans, Geese, and Ducks), 103.

Order STEGANOPODES—The Totipalmate Swimmers..... 193
Family Pelecanidæ (The Pelicans), 195.—Family Phalacrocoracidæ (The Cormorants), 202.—Family Anhingidæ (The Anhingas), 207.

Order LONGIPENNES—The Long-winged Swimmers..... 210
Family Stercorariidæ (The Skuas and Jaegers), 211.—Family Laridæ (The Gulls and Terns), 219.

Order PYGOPODES—The Diving Birds..... 251
Family Urinatoridæ (The Loons), 252.—Family Podicipidæ (The Grebes), 258.

PART I.

(CONCLUDED.)

A DESCRIPTIVE CATALOGUE

OF THE

BIRDS OF ILLINOIS.

BY ROBERT RIDGWAY.

ORDER **GALLINÆ**.—THE GALLINACEOUS BIRDS.

The following families of *Gallinæ* are represented in Illinois:

A. Tarsi spurred, and head partly naked.
1. **Phasianidæ.**

B. Tarsi without spurs, and head entirely feathered, except, sometimes, a bare space over eyes.
2. **Tetraonidæ.**

SUBORDER **PHASIANI.**

FAMILY **PHASIANIDÆ**.—THE PHEASANTS.

CHAR. Hind toe short and elevated, as in *Tetraonidæ*. Tarsi spurred. Head partly naked. Tail often vaulted or arched.

Two subfamilies of *Phasianidæ* are represented in the Illinois fauna, one of them (*Phasianinæ*), however, only by introduced species. Their characters are as follows:

Phasianinæ. Head mostly feathered, except round eyes. Tail elongated, graduated, arched, or vaulted. Plumage of sexes widely different, the female much smaller than the male and without brilliant coloring. (Introduced species only.)

Meleagrinæ. Head entirely naked, or else with only small hair-like feathers or short tufts of imperfect feathers. Tail moderate as to length, flat, rounded, the feathers broad and nearly truncated at tips. Sexes essentially alike in plumage but females duller in color than males.

SUBFAMILY **MELEAGRINÆ**.—THE TURKEYS.

CHAR. Head unfeathered, the skin wrinkled and often warted, the forehead with a more or less developed extensile fleshy appendage (smaller in females). Nasal fossæ bare. Tail moderately lengthened, rounded at end, not vaulted nor arched, the feathers (more than twelve) broad and nearly truncated at tips. Hind toe elevated; tarsus armed with spurs in the male. Plumage of the sexes essentially alike, but females somewhat duller in color than males.

The subfamily *Meleagrinæ*, or Turkeys, belongs to that branch or section of the great gallinaceous Order (*Gallinæ*) to which Professor Huxley has given the name of *Alectoropodes*, and which have been later named *Gallinæ Alectoropodes* by Messrs.

Sclater and Salvin. To the same suborder belong the common domestic fowl, the Guinea-fowl (*Numida meleagris*), the Old World *Phasianidæ*, or Pheasants, and all of the Grouse and Partridge families (*Tetraonidæ* and *Perdicidæ*). To the other suborder (known as *Gallinæ Peristeropodes*) belong the tropical American *Cracidæ* (Curassows, Guans, and Chachalacas) and the Australian *Megapodidæ* (Mound-Fowl or Brush-Turkeys).

The *Meleagrinæ*, as at present known, include a single genus, *Meleagris*, which is peculiar to eastern and southeastern North America, its southern limit being the Peten district of Guatemala and parts of British Honduras, where (as also in Yucatan) occurs the *M. ocellata* (the Ocellated or Honduras Turkey)—a magnificent bird, almost rivaling the Impeyan Pheasant and Peacock in the brilliancy of its colors.

Genus **MELEAGRIS** Linnæus.

Meleagris Linn. Syst. Nat. ed. 10, 1758, 156. Type, *Meleagris gallopavo* Linn.

Gen. Char. Legs with transverse scutellæ before and behind; reticulated laterally. Tarsi with spurs. Tail rounded, rather long, usually of eighteen feathers. Forehead with a depending fleshy cone. Head and the upper half of the neck without feathers. Breast of male in one species with a long tuft of bristles.

The two species of this genus (one of them with two very strongly marked geographical races) may be distinguished as follows:

1. **M. gallopavo.** Breast of the male with a tuft of long, coarse, hair-like black bristles. Tail bright umber- or dull ferruginous-brown, narrowly barred with black, and crossed near the end with a broad subterminal band of black. Spurs moderately developed. Female much smaller and duller colored than the male.

   α. *gallopavo.* Tip of tail and all of the upper tail-coverts dark chestnut; prevailing hue of metallic reflections coppery. *Hab.* Eastern United States and Canada.

   β. *mexicana.* Tip of tail and all of the upper tail-coverts white or pale buff;* prevailing hue of metallic reflections greenish. *Hab.* The common domesticated bird, derived from the wild Mexican race; the latter ranging from southern Mexico north to mountains of Arizona, New Mexico, southern Colorado, and western Texas.

2. **M. ocellata.** Breast of male without tuft of bristles. Tail ash-gray, narrowly barred with black, broadly tipped with refulgent copper-bronze, and ornamented with large subterminal eye-spots or ocellæ of brilliantly metallic steel-blue, bordered with velvety black; longer upper tail-coverts similarly adorned, and body barred with richly lustrous golden-bronze, steel-blue, green, etc., and velvety black. Spurs greatly developed and very sharp in the male. Female decidedly smaller than the male but scarcely less brilliant. *Hab.* Yucatan, Peten district of Guatemala, and adjoining portions of British Honduras.

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* Some varieties, due to domestication, are wholly black, cream-colored, or tawny.

Meleagris gallopavo (Linn.)

WILD TURKEY.

Meleagris gallopavo Linn. S. N. ed. 10, i, 1758, 156; ed. 12, i, 1766, 268.—Aud. Orn. Biog. i, 1831, 1, pls. 1, 6; v, 1839, 559; Synop. 1839, 194; B. Am. v, 1842, 42, pls. 287, 288.—Nutt. Man. i, 1832, 630.—Baird, B. N. Am. 1858, 651; Cat. N. Am. B. 1859, No. 457.—B. B. & R. Hist. N. Am. B. iii, 1874, 404.—A. O. U. Check List, 1886, No. 310.—Ridgw. Man. N. Am. B. 1887, 207.

Meleagris americana Bartr. Travels, 1791, 290.

Meleagris gallopavo var. *americana* Coues, Key, 1872, 232; Check List, 1874, No. 379 *a*; B. N. W. 1874, 391.

Meleagris gallopavo americana Ridgw. Nom. N. Am. 1881, No. 470 *a*.—Coues, 2d Check List, 1882, No. 554.

Hab. Eastern United States, north to southern Minnesota and Dakota, Ontario, etc.—formerly to Massachusetts and Vermont, but now extinct in most parts of the northeastern States; south to the Gulf coast (including Florida); west to Iowa, eastern Kansas, Indian Territory, and eastern Texas.

Sp. Char. The naked skin of the head and neck is blue; the excrescences purplish red and whitish. The legs dull red. The feathers of the neck and body generally are very broad, abruptly truncate, and each one well defined and scale-like; the exposed portion coppery bronze, with a bright coppery reflection in some lights, most brilliant on the under parts. Each feather is abruptly margined with velvety black, the bronze assuming a greenish or purplish shade near the line of junction, and the bronze itself sometimes with a greenish reflection in some lights. The black is opaque, except along the extreme tip, where there is a metallic gloss. The feathers of the lower back and rump are black, with little or no coppery gloss. The feathers of the sides behind, and the coverts, upper and under, are of a very dark purplish chestnut, with purplish metallic reflections near the end, and a subterminal bar of black; the tips are of the opaque purplish chestnut referred to. The concealed portion of the coverts is dark chestnut, barred rather finely with black, the black wider than the interspaces. The tail feathers are dark brownish chestnut, with numerous bars of black, which, when most distinct, are about a quarter of an inch wide and about double their interspaces; the extreme tip for about half an inch is plain chestnut, lighter than the general color; and there is a broad subterminal bar of black about two inches wide on the outer feathers, and narrowing to about three quarters of an inch to the central ones. The innermost pair scarcely show this band, and the others are all much broken and confused. In addition to the black bars on each feather, the chestnut interspaces are sprinkled with black. The black bands are all most distinct on the inner webs; the interspaces are considerably lighter below than above.

There are no whitish tips whatever to the tail or its coverts. The feathers on the middle of the belly are downy, opaque, and tipped obscurely with rusty whitish.

The wing-coverts are like the back; the quills, however, are blackish brown, with numerous transverse bars of white, half the width of the interspaces. The exposed surfaces of the wing, however, and most of the inner secondaries, are tinged with brownish rusty, the uppermost ones with a dull copper or greenish gloss.

The female differs in smaller size, less brilliant colors, absence generally of bristles on the breast and of spur, and a much smaller fleshy process above the base of the bill.

Male. Length, 48.00 to 50.00; extent, 60.00; wing, 21.00; tail, 18.50. Weight, 16 to 40 lbs.

Female. Weight, about 12 lbs.; measurements smaller in proportion.

Once abundant throughout the State, the Wild Turkey is now exterminated in some sections and reduced in numbers elsewhere. In some densely wooded districts of the extreme southern counties it is still common, but is becoming less so every year.

Family **TETRAONIDÆ**.—The Grouse, Partridges, and Quails.

Char. Hind toe small (much less than half as long as lateral toes), and inserted above the level of the anterior toes. Tarsi without spurs. Head entirely feathered (in American species) except, sometimes, over eyes. Tail not vaulted or arched,

The following subfamilies of Tetraonidæ have usually been given full family rank, but almost without doubt are more closely related.

Tetraoninæ. Tarsi with at least the upper half feathered; sides of toes with deciduous comb-like pectinations (falling off in summer).

Perdicinæ. Tarsi entirely naked, and toes without pectinations at any season.

Subfamily **TETRAONINÆ**.—The Grouse.

Char. Gallinaceous birds with the margins of the toes distinctly pectinated*, the tarsi at least half feathered, the nasal fossæ densely filled with feathers (so as to completely enclose and partially conceal the nostril). Sides of neck often with an inflatable air-sac. A bare (usually red or yellow) space over eyes.

The *Tetraoninæ* are very strongly characterized among gallinaceous birds by the peculiarities of structure named in the above diagnosis. In addition, the following characters (not always present) may be mentioned.

The superciliary region is usually more or less bare, and sometimes (notably in the Ptarmigans) adorned with a comb-like, or ciliated, erectile process, of a brilliant red or yellow color during the breeding season. The tail is extremely variable in development and form, and may be either short and rounded (as in *Tympanuchus* and *Lagopus*), rather lengthened and fan-shaped (as in *Dendragapus* and *Bonasa*), very short and graduated, with the middle feathers lengthened and nearly truncate (*Pediocætes*), or considerably lengthened and much graduated, with the feathers acute (*Centrocercus*). Some genera have an inflatable air-sac on the side of the neck, while ornamental tufts of feathers on the neck are possessed by others, *Tympanuchus* and *Bonasa*.

*These pectinations, however, are wanting in summer.

The subfamily is most numerously developed in North America, its other representatives belonging to the colder portions of Europe and Asia. Of the genera included in the following analytical table all but one are to be found either within or very near to the geographical field of the present work.

A. Legs feathered to and on the basal membrane of the toes, which are bare. No ruff on the side of the neck, which, however, has an extensiblo bare space.
Dendragapus. Tail broad, nearly even, or truncate, and rounded laterally, two thirds the wing. Nasal fossæ scarcely half the culmen.
Centrocercus. Tail excessively lengthened and cuneate; longer than the wings, the feathers acuminate. Nasal fossæ two thirds the culmen. Shafts of feathers on the lower throat very spinous in the male.
Pediocætes. Tail very short, but graduated, and with the two middle feathers (perhaps tail-coverts) lengthened beyond the rest, and two thirds as long as the wing; the next longest half the wing. Nasal fossæ not half the length of culmen. Shafts of throat feathers normal.

B. Legs feathered to the lower end of tarsus.
Tympanuchus. Tail very short, truncate, but laterally graduated; half as long as the wings. Sides of neck with long, narrow, and rather stiff feathers. Nasal fossæ scarcely one third the culmen.

C. Legs feathered to the claws.
Lagopus. Tail about two thirds the wing, truncate, of sixteen to eighteen feathers. Most species becoming white in winter; none of the other genera exhibiting this peculiarity.

D. Lower half of tarsi bare, with two rows of scutellæ anteriorly.
Bonasa. Sides of neck with ruff of broad, truncate, soft feathers. Tail very broad, square or slightly rounded, as long as the wings.

Genus **BONASA** Stephens.

Bonasa Stephens, Shaw's Gen. Zoöl, xi, 1819, 298. Type, *Tetrao bonasia* Linn.
Tetrastes Keys. & Blas. Wirb. Europ. 1840, p. lxiv.

Gen. Char. Tail fan-shaped, its feathers very broad, soft, as long as the wings; eighteen in number. Tarsi naked for the lower half; covered with two rows of hexagonal scales anteriorly. Sides of toes strongly pectinated. Side of neck with a tuft of very broad soft feathers. Portion of culmen between the nasal fossæ about one third the total length. Top of head with soft crest.

Although but one species of this genus has been detected in North America, this has a very extensive range, embracing nearly the entire continent; all the wooded portions, in fact, excepting, perhaps, the extreme southern parts. As is often the case with birds whose range covers a large extent of territory, this species varies remarkably in color in the different portions of its habitat; northern specimens and those from the Rocky Mountains having almost invariably ash-gray tails, with the whole plumage of a decidedly grayish cast, while specimens from the grandly timbered and reekingly moist region of the northwest coast (Oregon to Sitka) have the tails dark ferruginous, while rich rusty

and chestnut tints prevail in the plumage. Specimens from the more southern districts of the eastern United States, where the rainfall is abundant and the country (formerly at least) thickly forest-clad, are much like those from the last-mentioned region, having always rufous tails, but the general coloration is decidedly paler. As we proceed northward (to New England and the British Provinces), and also in the mountain districts of the Middle States, the birds become gradually grayer (many New England specimens having distinctly gray tails) until finally, in the interior provinces of British America the extreme gray type (*B. umbelloides* Dougl.) is reached.

A single species of this genus, the Hazel Grouse (*B. bonasia*), inhabits the northern portions of the Old World, from western Europe to Japan. It bears a general resemblance to *B. umbellus*, but is decidedly smaller, lacks the conspicuous neck-tufts (which, however, appear to be present in a rudimentary condition), and has the throat black.

Bonasa umbellus (Linn.)

RUFFED GROUSE.

Popular synonyms. "Partridge" (in New England); "Pheasant" (in southern and western States); Ruffled Grouse; Drumming Grouse.

Tetrao umbellus LINN. S. N. ed. 12, i, 1766, 275.—WILS. Am. Orn. vi, 1812, 46, pl. 49.—NUTT. Man. i, 1832, 657.—AUD. Orn. Biog. i, 1831, 211; v, 1839, 560, pl. 41; Synop. 1839, 202; B. Am. v, 1842, 72, pl. 293.

Bonasa umbellus STEPH. Gen. Zool. xi, 1819, 300.—BAIRD. B. N. Am. 1858, 630; Cat. N. Am. B. 1859, No. 465.—COUES, Key, 1872, 232; Check List, 1874, No. 385; 2d ed. 1882, No. 565; B. N. W. 1874, 420.—B. B. & R. Hist. N. Am. B. iii, 1874, 448, pl. 61, figs. 3, 9.—RIDGW. Nom. N. Am. B. 1881, No. 473; Man. N. Am. B. 1887, 197.—A. O. U. Check List, 1886, No. 300.

HAB. Eastern United States, south to the Gulf coast (?). [Replaced from Manitoba, northwestward, and also in the Rocky Mountains, by a gray race, *B. umbellus umbelloides* (Dougl.), and on coast of Oregon, Washington, and British Columbia by the dark rusty *B. umbellus sabini* (Dougl.)]

SP. CHAR. Above ochraceous-brown finely mottled with grayish; the scapulars and wing-coverts with pale shaft-streaks, the rump and upper tail-coverts with median cordate spots of pale grayish. Tail ochraceous-rufous, narrowly barred with black, crossed terminally with a narrow band of pale ash; then a broader one of black, this preceded by another ashy one. (In specimens from the Alleghany Mountains and New England States, the tail usually more or less grayish to the base, sometimes entirely destitute of rufous tinge.) Throat and foreneck ochraceous. Lower parts white (ochraceous beneath the surface), with broad transverse bars of dilute brown, these mostly concealed on the abdomen. Lower tail-coverts pale ochraceous, each with a terminal deltoid spot of white, bordered with dusky. Neck-tufts brown or black. Length, 18.00; wing, 7.20; tail, 7.00. *Female* smaller, and with the neck-tufts less developed, but colors similar. *Young* (No. 39,161, St. Stephen's

N. B.; G. A. Boardman): Brown above, and dingy white beneath; a rufous tinge on the scapulars. Feathers of the jugulum, back, scapulars, and wing-coverts with broad median streaks of light ochraceous, and black spots on the webs; jugulum with a strong buff tinge. Secondaries and wing coverts strongly mottled transversely. Head dingy buff, the upper part more rusty; a postocular or auricular dusky patch, and a tuft of dusky feathers on the vertex. *Chick*: Above light rufous, beneath rusty white; uniform above and below; a dusky postocular streak inclining downwards across the auriculars. Bill whitish." (*Hist. N. Am. B.*)

The Ruffed Grouse or "Pheasant" as it is popularly known, is found throughout the State in wooded districts, becoming more rare southward. It is uncommon in the vicinity of Mount Carmel, and is growing less so as the woods become cleared.

The Ruffed Grouse is a constant resident in the districts where it occurs, and, as a general rule, is in no sense migratory, though it is stated by Audubon that in some regions where they are very abundant they perform partial sorties at the approach of autumn. These only occur in mountainous regions, in which during the winter months there is an insufficiency of food.

"The flight of this Grouse is low, straightforward, and rarely protracted more than a few hundred yards at a time. It is somewhat stiff, and performed with frequent, almost continual, beatings of the wings. When it is flushed from the nest, or is suddenly startled from the ground by a dog, it rises with a long whirring sound, which noise, however, is not made when the bird rises of its own accord. Its movements on the ground are very stately and graceful, except when it is approached too near, when it runs in a rapid manner, lowers its head and spreads its tail, and either seeks shelter or takes to flight. When it hides in the bushes, it usually squats and remains close." (BREWER.)

On few matters pertaining to our birds has there been greater difference of opinion than as to the manner in which the drumming sound of this species is produced. In the *American Sportsman* for February 21, 1874, the writer gave a general review of what had been published on the subject, supplemented by some original information received from Mr. H. W. Henshaw, which were to the effect that the sound was produced by hard strokes of the wings, both downward and forward, *but without touching the body of the bird.*

GENUS **LAGOPUS** BRISSON.

Lagopus BRISS. Orn. i, 1760, 181. Type, *Tetrao lagopus* LINN.

GEN. CHAR. Nasal groove densely clothed with feathers. Tail of sixteen or eighteen feathers. Legs closely feathered to the claws. Plumage snow-white in winter.

The Ptarmigans inhabit the northern regions of both hemispheres, and with the Arctic fox and hares, the lemmings, and a few other species, characterize the Arctic zone. They are of rare occurrence within the limits of the United States, though farther north they become abundant. The species all change to white in winter, except *L. scoticus*, which is permanently dark rusty brown, and inhabits the uplands of Scotland and England.

Lagopus lagopus (Linn.)

WILLOW PTARMIGAN.

Popular synonyms. White Ptarmigan; Willow Grouse.

Tetrao lagopus LINN. S. N. ed. 10, i, 1758 159.

Lagopus lagopus STEJN. Proc. U. S. Nat Mus. viii, 1885, 20.—A. O. U. Check List, 1886, No. 301.—RIDGW. Man. N. Am. B. 1887, 199.

Tetrao albus GM. S. N. i, pt. ii, 1788, 750.

Lagopus albus AUD. Synop. 1839, 207; B. Am. v, 1842, 114.—NUTT. Man. 2d ed. i, 1840, 816.—BAIRD, Cat. N. Am. B. 1859, No. 467.—COUES, Key, 1872, 235; Check List, 1874, No. 386; 2d ed. 1882, No. 568; B. N. W. 1874, 429.—B. B. & R. Hist. N. Am. B. iii, 1874, 457, pl. 62, figs, 1, 2, 3.—RIDGW. Nom. N. Am. B. 1881, No. 474.

Tetrao saliceti TEMM. Man. ii, 1820, 474.—AUD. Orn. Biog. ii, 1834, 528, pl. 191.

HAB. Northern North America, south, in winter, to northern border of United States (northern New York, Michigan, Minnesota, Wisconsin, northern Illinois?, etc.). Also found in northern parts of the Old World.

SP. CHAR. Bill very stout; high as the distance from the nasal groove to its tip. Tail always black, narrowly tipped with white; wing (except upper coverts) pure white.

"*Summer. Male* (No. 43,505, Fort Anderson, September 8; R. MacFarlane): Head, neck, and jugulum deep cinnamon-rufous: whole upper parts (except wings) paler, more fulvous brown, broadly and closely barred with black. Top of head spotted with black, and the jugulum and neck with scattered bars of the same, Wing, 7.50; bill, .40 from nostril, and .35 deep. *Female* (No. 53,526, Fort Anderson, June, 1865; R. MacFarlane): Entire plumage (except wings, tail, and legs) fulvous-buff, heavily spotted and barred with black. Wing, 7.20; bill, .40 by .40.

"*Winter.* Entire plumage, except the tail (which is black with white tip), immaculate snowy-white; shafts of primaries black. *Male* (No. 34,968, Northwest R., Labrador; D. Smith): Wing, 7.50; bill, .42 by .45. *Female* (No. 50,060, Nulato, Lower Yukon, April 12, 1867; W. H. Dall): Wing, 7.50; bill, .42 by .42.

"*Chick* (No. 2,648, Fort Anderson, July, 1864). Prevailing color greenish buff, tinged with sulphur-yellow on the throat and abdomen, and washed with fulvous on the upper parts. A large oval vertical patch of chestnut-rufous, bordered all round by a black line, which, from the occiput, is continued down the nape in a broad distinct stripe of black. On the upper part of the back this stripe bifurcates, and continues in two broad parallel stripes to the lower part of rump, where they again unite. A black stripe across the wing and one through the eye and auriculars." (*Hist. N. Am. B.*)

The propriety of including this species in the fauna of Illinois, is exceedingly doubtful. Mr. Kennicott gave it in his list of the birds of Cook county, with the remark that it was "sometimes found in the timber along Lake Michigan"; but Mr. Nelson thinks that this note was based "upon the capture of two specimens, December, 1846, near Racine, [Wisconsin] as noted by Dr. Hoy (Wis. Agr. Rep., 1852)."

Genus **TYMPANUCHUS** Gloger.

Tympanuchus Gloger, Handb. Vög. Deutschl., 1842. Type, *Tetrao cupido* Linn.
Cupidonia Reich. Av. Syst. Nat. 1850, p. xxix. Same type.

Gen. Char. Tail of eighteen feathers, short, half the length of wings; the feathers stiffened and more or less graduated. Bare inflatable air-sac of the neck concealed by a tuft of long, stiff, lanceolate feathers; an inconspicuous crest on the vertex. Tarsi feathered only to near the base, the lower joint scutellate. Culmen between the nasal fossæ scarcely one third the whole length.

The genus, so far as known, is entirely peculiar to North America, where there are three species, all confined to the eastern water-shed of the United States. The two occurring west of the Alleghanies may be distinguished as follows:

Common Characters. Ground-color above yellowish brown, tinged with grayish and reddish; beneath white; whole upper and lower parts variegated with transverse bands,—those beneath regular, broad, sharply defined, and plain grayish brown, or dusky, those above more broken, broader, and deep black. Head buff, with a broad vertical stripe, a broad one beneath the eye from bill to ears, and a patch on lower side of auriculars, brownish black.

T. americanus. Tarsi clothed with long hair-like feathers, the bare posterior face entirely hidden. Dark bars above, .30 or more in width, deep black; those beneath, about .20 wide, and dark brown. Top of head nearly uniformly blackish; face-stripes dusky-black. Bill, .40 deep, .50 long; wing, 9.00. *Hab.* Prairies of the Mississippi Valley; south to Louisiana and eastern Texas.

T. pallidicinctus. Tarsi clothed with short feathers, the bare posterior face conspicuously exposed. Dark bars above less than .20 in width, dark grayish brown; those beneath about .10 wide, and pale grayish brown. Top of head with only a slight spotting of blackish; face-markings reddish brown. Bill, .35 deep, .55 long, from nostril; wing, 8.30. *Hab.* Southwestern prairies (middle and western Texas, etc.).

Tympanuchus americanus (Reich.)

PRAIRIE HEN.

Popular synonyms. Prairie Chicken; Chicken (in prairie districts); Pinnated Grouse.

Tetrao cupido Wils. Am. Orn. iii, 1811, 104, pl. 27 (*nec* Linn.)—Nutt. Man. i, 1832, 662.—Aud. Orn. Biog. ii, 1834, 490; v, 1839, 559, pl. 186; Synop. 1839, 204; B. Am. v, 1842, 23, pl. 296.

Cupidonia cupido Baird, B. N. Am. 1838, 628; Cat. N. Am. B. 1859, No. 464.—Coues, Key, 1872, 234; Check List, 1874, No. 384; 2d ed. 1882, No. 563; B. N. W. 1874, 419.—B. B. & R. Hist. N. Am. B. iii, 1874, 440, pl. 61, figs. 1, 7.—Ridgw. Nom. N. Am. B. 1881, No. 477.

Cupidonia americanus Reich. Syst. Av. 1852, p. xxix.

Tympanuchus americanus Ridgw. Auk, Jan. 1886, 133; Man. N. Am. B. 1887, 203.—A. O. U. Check List, 1886, No. 305.

Cupidonia pinnata Brewster, Auk, ii, Jan. 1885, 82.

HAB. Prairies and open cultivated districts of the Mississippi Valley.

"SP. CHAR. *Male* (No. 10,006, Tremont, Illinois; W. I. Shaw): Ground-color above ochraceous-brown, tinged with grayish; beneath white, the feathers of the jugulum dark rusty-chestnut beneath the surface. Head mostly deep buff. Upper parts much broken by broad transverse spots, or irregular bars of deep black, this color predominating largely over the lighter tints. Primaries and tail plain dusky; the former with roundish spots of pale ochraceous on outer webs, the latter very narrowly tipped with white. Lower parts with regular, continuous, sharply defined broad bars, or narrow bands, of clear dusky brown. A broad stripe of plain brownish black on side of head, beneath the eye, from rictus to end of auriculars; a blotch of the same beneath the middle of the auriculars, and the top of the head mostly blackish, leaving a broad superciliary and maxillary stripe, and the whole throat immaculate buff. Neck-tufts 3.50 inches long, deep black; the longer ones uniform, the shorter with only the edge black, the whole middle portion pale buff, shading into deep reddish rusty next to the black. Wing, 9.00; tail, 4.50; bill, .40 deep by .50 long, from nostril; tarsus, 2.10; middle toe, 1.85. *Female* similar, but with shorter and inconspicuous cervical tufts. *Young* (No. 25,998, Rockford, Illinois; Blackman): Above, including tail, yellowish brown; feathers with conspicuous white shaft-streaks and large blotches of deep black. Outer webs of primaries with whitish spots. Top of head rusty-brown with a black vertical and dusky auricular patch. Lower parts yellowish white, with irregularly defined transverse, grayish brown broad bars; anteriorly more spotted, the jugulum tinged with brown.

"*Chick* (No. 25,989, Rockford, Ill.). Bright lemon-buff, tinged on sides and jugulum with reddish; upper parts much washed with rusty. A narrow auricular streak, blotches on the vertex and occiput, a stripe across the shoulder, and blotches down the middle of the back and rump, deep black." (*Hist. N. Am. B.*)

To describe in a work intended especially for Illinois readers the habits of the Prairie Chicken, seems almost as superfluous a proceeding as "carrying coals to Newcastle;" hence we omit further reference to this species than the following brief account of its nesting, from *History of North American Birds.*

"This bird nests, according to the locality in which it is met with, from the beginning of April to the last of May. In Kentucky Audubon has found their nests with eggs early in April, but the average period there was the first of May. Their nests he describes as somewhat carelessly formed of dry leaves and grasses, interwoven in a tolerably neat manner, and always very carefully placed among the tall grass of some large tuft in the open ground of the prairies, or in barren lands at the foot of a small bush."

GENUS **PEDIOCÆTES** BAIRD.

Pediocœtes BAIRD, B. N. Am. 1858, 625. Type, *Tetrao phasianellus* LINN.

"GEN. CHAR. Tail short, graduated; exclusive of the much lengthened middle part, where are two feathers (perhaps tail-coverts) with parallel edges and truncated ends, half the full rounded wing. Tarsi densely feathered to the toes and between their bases. Neck without peculiar feathers. Culmen between nasal fossæ not half the total length."

Pediocætes phasianellus campestris Ridgw.

PRAIRIE SHARP-TAILED GROUSE.

Popular synonyms. Spike-tail, Pin-tail, or Sprig-tail Prairie Chicken.

Pediocœtes columbianus ELLIOT, Proc. Phila. Acad. 1862, 403, and Monogr. Tetraon. (*part*).
Pediocœtes phasianellus var. *columbianus*, part, AUCT. (all reference to specimens from east of the Rocky Mountains within the United States).
Tetrao phasianellus (*nec* LINN.) AUD. Orn. Biog. iv, 1838, 569, pl. 382; Synop. 1839, 205; B. Am. v, 1842, 110, pl. 298.
Pediocœtes phasianellus BAIRD, B. N. Am. 1858, 626 (part).
Pediocœtes phasianellus campestris RIDGW. Proc. Biol. Soc. Wash. ii, Apr. 10, 1884, 93; Man. N. Am. B. 1887, 204.—A. O. U. Check List, 1886, No. 308*b*.

HAB. Plains of the United States, from eastern slope of Rocky Mountains, in Montana, Wyoming, and Colorado, to the prairies of the Missouri Valley, and more sparingly, into Wisconsin, southern Michigan, and northern Illinois.

SUBSP. CHAR. Differing from *P. phasianellus columbianus* in rather lighter and much more ochraceous coloration above, with the black bars narrower and less regular, and having the V-shaped markings of the lower parts much less distinct (never deep black).

Types, Nos. 76,743, male ad., Illinois, and 19,173, female ad., Rosebud Creek, Montana.

In the *Bulletin of the Nuttall Ornithological Club* for October, 1882, p. 233, Mr. Brewster alludes to differences between specimens of the Sharp-tailed Grouse from Fort Walla Walla, Washington, and others from eastern localities, but concludes that the differences noted "probably have only a local significance." This was formerly my opinion also; but many additional specimens subsequently received at the National Museum show conclusively that two very different styles of this bird inhabit the regions west and east of the Rocky Mountains, respectively. *P. phasianellus columbianus* is represented in the collection by specimens from Washington, Oregon, northern California, and Nevada; and *P. phasianellus campestris* by examples from Montana (east of the mountains), eastern Wyoming and Colorado, Nebraska, Dakota, and Illinois.

P. phasianellus campestris is the form described and figured by Audubon (B. Am. v, p. 112, pl. 298), under the name *Tetrao phasianellus*.

This species, so much like the Prairie Chicken in its appearance and habits as to be quite generally confounded with it, is apparently confined to the northern portion of the State, where it seems to be of rather uncommon occurrence, at the present time at least. Mr. Nelson (p. 121 of his list) says:

"If this species now occurs it is extremely rare. Mr. Kennicott notes it as 'not uncommon formerly.' At present it is restricted to the northwestern portion of the State. The last record of its occurrence in this vicinity is furnished by my friend Mr. T. H. Douglas, who informs me that in the fall of 1863 or 1864, while two gentlemen were shooting prairie chickens near Waukegan, they found and secured a covey of these birds, numbering fourteen individuals. These had, in all probability, been raised in the immediate vicinity."

Regarding its former occurrence in considerable numbers, we find in *Forest and Stream* for October 9, 1879, p. 705, the following confirmation of Mr. Kennicott's record:

"HABITAT OF SHARP-TAILED GROUSE.—*Marietta, Ga., September 29.* Your correspondent in the issue of September 25, writing of the sharp-tailed grouse, thinks that it has never been found south of latitude 43°.

"In 1840–'45 this specie swas abundant in southern Wisconsin and northern Illinois as far south as Chicago (latitude 42°), always frequenting the timber, which gave it the local name of burr-oak grouse. We used to consider its flesh of finer flavor than that of its congener, the prairie hen."

SUBFAMILY **PERDICINÆ**.—THE PARTRIDGES.

CHAR. Tarsi and toes entirely naked, nasal fossæ unfeathered, protected by a naked scale. Sides of toes without pectinations at any season. Sides of neck without an inflatable air-sac, and no bare space over eyes.

The Partridges differ from the Grouse in the bare legs, and naked nasal fossæ. They are much smaller in size and more abundant in species. They are widely distributed over the surface of the globe, a large number belonging to America, where the subfamilies have no Old World representatives whatever. The head seldom, if ever, shows the naked space around and above the eye, so common in the *Tetraoninæ;* and the sides of the toes do not exhibit the peculiar pectination formed by a succession of small scales or points.

GROUP **Odontophoreæ**.

CHAR. Bill stout, the lower mandible more or less bidentate on each side near the end.

The *Ortyginæ* of Bonaparte, or *Odontophorinæ* of other authors, are characterized as a group by the bidentation on either side of the edge of lower mandible, usually concealed in the closed mouth, and sometimes scarcely appreciable. The bill is short, and rather high at base; stouter and shorter than what is usually seen in Old World Partridges. The culmen is curved from the base; the tip of the bill broad, and overlapping the end of the lower mandible. The nasal groove is short. The tail is usually rather broad and long.

Four genera are found in the United States, but only one of these occurs east of the Mississippi River, the remainder belonging to the southwestern border and the Pacific coast. Some of the western species are strikingly elegant birds, especially the Mountain Quail (*Oreortyx pictus*) and Valley Quail (*Lophortyx californicus*) of the Pacific coast. The genera *Callipepla* and *Cyrtonyx* belong to Mexico and contiguous border of the United States, each having a single species within our limits.

Genus **COLINUS** Lesson.

Ortyx Stephens, Shaw's Gen. Zoöl. xi, 1819. Preoccupied. Type, *Tetrao virginianus* Linn.

Colinus Less. Man. ii, 1828, 190. Same type.

Gen. Char. Bill stout. Head without crest. Tail short, scarcely more than half the wing, composed of moderately soft feathers. Wings normal. Legs distinct, well developed, the toes reaching considerably beyond the tip of the tail; the lateral toes short, equal, their claws falling decidedly short of the base of the middle claw.

The genus *Colinus* embraces numerous species, all more or less resembling the well-known Bob-white of the United States. They are chiefly confined to Mexico, Central America, and the Greater Antilles. North America and the West India Islands contain but one species, and this is so variable in plumage that it is only at extreme points of its range that differences acquire sufficient constancy to be considered worthy of special notice. The regions of its extremes of variation are the northeastern, southeastern, and southwestern limits of its range; the modifications attaining in Cuba and in Texas sufficient value to have been deemed of specific importance. But comparing even the three extremes of plumage, the differences are found to consist only in a varying amount of the several colors, specimens from intervening regions forming the connecting links.

Colinus virginianus (Linn.)

BOB-WHITE.

Popular synonyms. "Quail" (in New England and most portions of the Mississippi Valley); "Partridge" (in southern States and parts of the interior); American Quail; Virginia Quail; Partridge or Colin.

Tetrao virginianus Linn. S. N. ed. 10, i, 1758, 161; ed. 12, i, 1766, 277.
Perdix virginiana Lath. 1790.—Wils. Am. Orn. vi, 1812, 21, pl. 47.—Aud. Orn. Biog. i, 1831, 388; v, 1839, 564, pl. 76.—Nutt. Man. i, 1832, 646.

Ortyx virginianus JARD.—AUD. Synop. 1839, 199; B. Am. v, 1842, 59, pl. 289.—BAIRD. B. N. Am. 1858, 640; Cat. N. Am. B. 1859, No. 471.—COUES, Key, 1872, 236; Check List, 1874, No. 389; 2d ed. 1882, No. 571; B. N. W. 1874, 431.—B. B. & R. Hist. N. Am. B. iii, 1874, 468, pl. 63, figs. 1, 2.—RIDGW. Nom. N. Am. B. 1881, No. 480.

Colinus virginianus STEJN. Auk, Jan. 1885, 45.—A. O. U. Check List, 1886, No. 289.—RIDGW. Man. N. Am. B. 1887, 188.

HAB. Eastern United States, north to Massachusetts and Ontario, south to Georgia, Alabama, Louisiana, and eastern Texas (?), west to the edge of the Great Plains. Replaced in Florida by the smaller and much darker *C. virginianus floridanus* Coues, and in central Texas, north to western Indian Territory by the much lighter colored *C. virginianus texanus* (Lawr.).

SP. CHAR. *Adult male:* Pileum and stripe on side of head mixed black and rusty, the former prevailing; broad and distinct superciliary stripe, chin and throat white. Upper parts mottled rusty and grayish, the scapulars and tertials spotted with black, the latter with inner webs broadly edged with ochraceous. Jugulum mixed rusty, black, and white; abdomen white, with irregular V-shaped bars of black; sides rusty, streaked with black and white. *Adult female:* Similar to the male, but superciliary stripe and throat ochraceous and pileum, together with stripe on side of head, mostly rusty. *Young:* Pileum and auriculars dull dark grayish; superciliary stripe and throat dull dirty whitish; jugulum and breast dull grayish brown, with whitish shaft-streaks, abdomen plain dull white. Back rusty brownish, with whitish shaft-streaks and black spots. *Downy young:* Head dingy buff, with an elongated dusky auricular spot; and on the crown an oblong patch of chestnut-rufous.

Total length (fresh specimens) 9.50–10.50; extent, 14.00–15.50.

The common Quail or Partridge, as this fine bird is variously known in our State, is a bird of very general distribution, and its habits are so familiar that any detailed description is here unnecessary. The farmer has no better friend than this species, which devours "bugs" of all sorts in large quantities, and is particularly fond of the Colorado potato beetle. During severe winters farmers would do well, only their own interests being considered, to feed the quail on their farms to prevent their dying of starvation.

This species can be easily tamed, and breeds very readily in confinement. (See *Forest and Stream*, Vol. XIX., Nos. 9 and 10, September 28 and October 5, 1882, pp. 164, 165, 185, and 186.)

In former publications we have given *C. virginianus floridanus* as an inhabitant of southern Illinois, and Mr. Nelson, coincided in this opinion. Under this name, Mr. Nelson (in *Bull. Essex Inst.* IX., 1877, p. 43), says:

"The prevailing form in the bottoms, where the typical *virginianus* is comparatively rare. The specimens obtained are typical of the variety, some having even larger bills than any Florida examples seen, while the other proportions are equally small, and the colors fully as dark. A remarkable characteristic

of this form in southern Illinois is its arboreal habits. The males are repeatedly found uttering their song from the tops of tall trees in densely wooded portions of the bottoms, and when a flock becomes scattered its members would almost invariably take to the trees, and soon their call notes would resound through the forest. Mr. Ridgway's observations regarding the habits of this form in the vicinity of Mt. Carmel coincide with mine, and in his collection also are extremes of the var. *floridanus*."

Subsequent consideration of the matter, in the light of much new material, has convinced us that these small, deep-colored, and large-billed quail cannot properly be referred to the Florida form. It is true that some specimens are, as stated above, equally small, as dark colored, and with even larger bills than the typical Florida birds; but the latter are constantly different in their much less rusty color above, and some other minor particulars as regards plumage. Were the small, dark-colored birds the prevailing form in southern Illinois, they might with propriety be separated from both the typical *virginianus* and the *floridanus* type; but the average style is apparently so nearly intermediate between the two that such separation seems quite unnecessary.

Order **LIMICOLÆ**.—The Shore-Birds.

Characters. Præcocial wading birds, usually of small size; distinguished from the *Herodiones* by præcocial habits and many striking differences of structure, and from the *Paludicolæ* (Cranes and Rails) by their lengthened, usually pointed, wings and small or rudimentary hind toe, the latter member being sometimes wanting.

The Limicolæ constitute the large assemblage of small waders known to sportsmen as "shore-birds", and include the different groups distinguished (or, rather, confused) in popular nomenclature by the terms snipe, plover, curlew, etc.

The clear definition of the several families composing the order is a matter of some difficulty, the variations of structure within each family being very great. The following, however, may answer for the separation of those occurring in North America.

A. Bill much longer than tarsus, excessively compressed, deepest through the middle portion.

Hæmatopodidæ. No hind toe; a well-developed web between outer and middle toes at the base; front of tarsus covered with hexagonal scales. Size very large.

B. Bill about equal to or shorter than the tarsus, moderately compressed, deepest through the base.

Aphrizidæ. A well-developed hind toe, with claw; no trace of web between outer and middle toes; front of tarsus covered by a row of transverse scutellæ. Size small.

C. Bill variable, but never longer than the tarsus; more or less depressed in the middle portion, the terminal portion of the culmen being more or less arched; never expanded laterally to the end. Hind toe usually absent.

Charadriidæ. Size large to very small. Bill slender or small, straight, always shorter than the tarsus.

D. Characters much the same as given for section "C," but toes, including the hallux, exceedingly lengthened, the claws also very much lengthened; scutellation of legs much as in the *Rallidæ*.

Jacanidæ. Size medium or rather small. Claws very long and compressed, nearly straight, that of the hallux equal to or longer than its digit, linear, and slightly recurved. Bend of the wing (head of metarcapus) armed with a sharp conical horny spur.

E. Bill exceedingly variable,—short or long, straight, slightly recurved or decidedly decurved, but more or less expanded laterally at the end, which is more or less sensitive. Hind toe usually present, rarely absent.

Scolopacidæ. Tarsus rounded in front, where clothed with a single row of transverse scutellæ.

F. Bill subulate (except in *Crymophilus*). Toes either partly webbed, or fringed by a lateral, usually lobed, margin. Plumage peculiarly soft and compact for this order, resembling greatly in this respect that of the *Longipennes*. Tarsi compressed, the anterior edge sharp.

Phalaropodidæ. Size small; tarsi and bill rather short, or but moderately lengthened; toes edged with a lateral, usually scalloped, margin.

Recurvirostridæ. Size large; tarsi and bill very long; toes partly webbed, and without scalloped margin.

FAMILY APHRIZIDÆ.—THE TURNSTONES.

CHAR. Rather small, plover-like birds, differing from the true Plovers (*Charadriidæ*) chiefly in the more robust feet, without trace of web between the toes, the well-developed hind toe, and the strong claws; the toes with a lateral margin, forming a broad flat undersurface (especially in *Aphriza*); the bill of one genus (*Arenaria*) peculiar. The two genera may be distinguished by the following characters:

Arenaria. Bill compressed and pointed terminally, somewhat upturned at the end, the culmen straight or even slightly concave; tarsus not longer than the bill; tail slightly rounded.

Aphriza. Bill slightly swollen terminally, the terminal portion of the culmen decidedly convex; tarsus decidedly longer than the bill; tail slightly emarginated.

GENUS ARENARIA BRISSON.

Arenaria BRISS. Orn. v, 1760, 132. Type, *Tringa interpres* LINN.
Strepsilas ILLIGER, Prodromus, 1811, 263. Same type.

CHAR. Form robust, the head small, neck short, wings long and pointed, feet stout. Bill straight along the culmen (or else slightly concave above), somewhat upturned terminally, compressed toward the end and pointed. Wings reaching beyond the tail, the first primary longest, the tertials not reaching to the end of the primaries. Tail slightly rounded. Tarsus decidedly longer than the middle toe, the latter shorter than the bill.

Arenaria interpres (Linn.)

TURNSTONE.

Popular synonyms. Calico-back; Brant Bird; Chicaric (Plymouth Bay, Mass.).

Tringa interpres LINN. S. N. ed. 10, i, 1758, 148; ed. 12, i, 1766, 248.—WILS. Am. Orn. vii, 1813, 32, pl. lvii.
Strepsilas interpres ILLIG. Prodr. 1811, 263.—SWAINS. F. B.-A. ii, 1831, 371.—NUTT. Man. Water Birds, 1834, 30.—AUD. Orn. Biog. iv, 1838, 31, pl. 304; Synop. 1839, 227; Birds Am. v, 1842, 331, pl. 323.—BAIRD, B. N. Am. 1858, 701; Cat. N. Am. B. 1859, No. 515.—COUES, Key, 1872. 246; Check List, 1874, No. 406; 2d ed. 1882, No. 598.—RIDGW. Nom. N. Am. B. 1881, No. 509.—B. B. & R. Water B. N. Am. i, 1884, 119.
Arenaria interpres VIEILL. Gal. Ois. ii, 1834, 102.—A. O. U. Check List, 1886, No. 283.—RIDGW. Man. N. Am. B. 1887, 180.
Morinella interpres STEJN. Proc. U. S. Nat. Mus. iv, 1882, 32.
Tringa morinellus LINN. S. N. i, 1766, 249 (young).
Strepsilas collaris TEMM. Man. ii, 1820, 553.
"*Charadrius cinclus* PALLAS" (BAIRD, l. c.)

HAB. Sea-coasts of nearly all countries; in America, from Greenland and Alaska to Chili and Brazil; in the interior, more or less common along the shores of the Great Lakes and larger rivers.

SP. CHAR. *Adult:* Chin and throat, a large loral patch, another covering terminal half of the auriculars, border of the pileum, and large transverse patch on each side of the jugulum, white; stripe from the frontlet to the eye, squarish patch beneath the eye, malar stripe, side of the neck, jugulum, and sides of the breast uniform black, all these markings confluent and sharply defined. Remainder of the lower parts, upper part of the rump, upper tail-coverts, and ends of secondaries, pure white. *Breeding plumage:* Upper parts dusky blackish, the wing-coverts lighter, more brownish gray, the feathers showing darker centres; back and scapulars little, if at all, varied with rufous; crown dusky, uniform, or streaked. *Spring (or winter) plumage:* Upper parts mixed black and bright rufous, the latter color occupying chiefly the middle of the back (longitudinally) and the wing-coverts; the scapulars and tertials mixed black and rufous. Pileum more streaked with white, and markings about the head and neck more sharply defined than in the summer dress. "Bill black; iris hazel; feet deep orange-red, claws black." (AUDUBON.) *Young:* Head chiefly mottled grayish, without well-defined markings; black of the jugulum and breast indicated by mottled dusky, occupying the same area, but not sharply defined; upper parts grayish dusky, the feathers bordered terminally with buff or whitish.

Total length, about 9 inches; wing, 6.00; tail, 2.50; culmen, .80–.90; tarsus, 1.00; middle toe, .75.

The Turnstone occurs in Illinois only as a migrant, and is chiefly confined to the shores of Lake Michigan. There, according to Mr. Nelson (pp. 123, 124 of his list), it arrives "May 15th in full breeding plumage and is found until the first week in June. Returns early in August, still in breeding plumage, which is exchanged for that of winter during the last of the month. Departs about the 20th of September. While here they are generally found in company with flocks of the smaller species of sandpipers."

FAMILY CHARADRIIDÆ.—THE PLOVERS.

CHAR. Small or medium-sized shore-birds (scarcely waders), with rather short, somewhat pigeon-like bill, large round head, short neck, long and pointed wings, and moderately lengthened legs, the hind toe usually absent.

The Plovers are quite distinct in their structural characters from the Sandpipes and other *Scolopacidæ*, being more nearly related to the Turnstones and Oyster-catchers, notwithstanding the fact that the latter are so different in appearance. Instead of wading about in the shallow ponds or the margins of streams, as is the custom of the *Scolopacidæ*, they frequent meadows and sandy tracts, where they run swiftly along the ground, in a peculiarly graceful manner.

The North American genera may be distinguished as follows:

A. Size large (wing more than eight inches); head more or less crested; plumage more or less metallic above. Occiput with a slender recurved crest; a well-developed hind toe, with claw; wing rounded, first quill shorter than fourth.

1. **Vanellus.** Wing unarmed, or with rudimentary spur; tarsus not more than twice as long as the middle toe.

B. Size medium or small (wing less than eight inches); head without crest, and plumage without metallic gloss above.

c. Wing more than six inches; plumage much speckled or spotted above; lower parts chiefly black in summer.

2. **Charadrius.** A well-developed hind toe, without claw.....Subgenus *Squatarola.*

3. No trace of hind toe; otherwise very similar to *Squatarola*, but smaller and more slender.....Subgenus *Charadrius.*

d. Wing less than six inches; plumage nearly or quite uniform grayish or brownish above (the rump ochraceous in subgenus *Oxyechus*), the lower parts chiefly or entirely white at all stages.

4. **Ægialitis.**

c^1. Tail very long (half as long as the wing, or more), extending half its length beyond tips of closed wings; rump and upper tail-coverts pale rufous or ochraceous in the American species.

Bill slender, about equal in length to the middle toe; tarsus decidedly less than twice as long as middle toe; rump and upper tail-coverts rufous or ochraceous (except in *O. tricollaris*) .....Subgenus *Oxyechus.*

c^2. Tail short (less than half as long as the wing), reaching little, if any, beyond ends of closed wings; rump concolor with the back.

Bill variable, but usually shorter than middle toe, or, if longer, very slender; tarsus less than twice as long as middle toe. Subgenus *Ægialitis.*

Bill very large (as long as, or longer than middle toe), the terminal half of the culmen much arched, the base of the gonys forming a decided angle; tarsus about one and one half times to nearly twice as long as middle toe.....Subgenus *Ochthodromus*

Bill slender, wide at base, much longer than middle toe; tarsus more than twice as long as middle toe.....Subgenus *Podasocys*.

Genus **CHARADRIUS** Linnæus.

Subgenus **Squatarola** Cuvier.

Squatarola Cuvier, Règ. Anim. i, 1817, 467. Type, *Tringa squatarola* Linn.

Char. A rudimentary hind toe. Legs reticulated with elongated hexagons anteriorly, of which there are five or six in a transverse row; fewer behind. First primary longest. Tail slightly rounded.

But a single species of this subgenus is known, this being the well-known "Beetle-head" or "Bull-head" Plover of eastern gunners, a bird of nearly cosmopolitan distribution.

Charadrius squatarola (Linn.)

BLACK-BELLIED PLOVER.

Popular synonyms. Beetle-head or Bull-head; Plover of eastern gunners and sportsmen; Bottle-head; Black-breast.

Tringa squatarola Linn. S. N. ed. 10, 1758, 149; ed. 12, 1766, 252.

Charadrius squatarola Naum. Vög. Deutschl. vii, 1834, 250.—A. O. U. Check List, 1886, No. 270.—Ridgw. Man. N. Am. B. 1887, 173.

Tringa helvetica Linn. S. N. ed. 12, 1766, 250.

Squatarola helvetica Cuv.—Cass. in Baird's B. N. Am. 1858, 697.—Baird, Cat. N. Am. B. 1859, No. 510.—Coues, Key, 1872, 243; Check List, 1874, No. 395; 2d ed. 1882, No. 580; Birds N. W. 1874, 448.—Ridgw. Nom. N. Am. B. 1881, No. 513.—B. B. & R. Water B. N. Am. i, 1884, 132.

Charadrius helveticus Licht.—Nutt. Man. ii, 1834, 26. Aud. Orn. Biog. iv, 1838, 280, pl. 334; Synop. 1839, 221; Birds Am. v, 1842 199, pl. 315.

Charadrius apricarius Wilson, Am. Orn. vii, 1813, 41.

Hab. Nearly cosmopolitan, but chiefly the northern hemisphere; breeding in the extreme northern parts of its range, migrating in winter to southern portions, extending, in America, as far as Brazil and Colombia. Bermudas, and throughout the West Indies.

Sp. Char. Bill and legs strong; wings long; a very small rudimentary hind toe. *Summer plumage:* Around the base of the bill to the eyes, neck before, and under parts of body, black; upper parts grayish white, nearly pure and unspotted on the forehead; sides of the neck and rump tinged with ashy, and having irregular transverse spots of brownish black on the back, scapulars, and wing-coverts; the brownish black frequently predominating on those parts, and the rump also frequently with transverse bars of the same. Lower part of the abdomen, tibia, and under tail-coverts, white. Quills brownish black, lighter on their inner webs, with a middle portion of their shafts white, and a narrow longitudinal stripe of white frequently on the shorter primaries and secondaries. Tail white, with transverse imperfect narrow bands of black. The black color of the under parts generally with a faint bronzed or coppery lustre, and presenting a scale-like appearance; the brownish black of the upper parts with a greenish lustre. Bill and legs black; iris brown. *Younger and winter plumage:* Entire upper parts dark brown, with circular and irregular small spots of white, and frequently of yellow, most numerous on the wing-coverts; upper

tail-coverts white. Under parts white, with short longitudinal lines and spots of dark brownish cinereous on the neck and breast; quills brownish black, with a large longitudinal space of white on their inner webs and also on the outer webs of the shorter primaries. *Young:* Upper parts lighter, and with the white spots more irregular or scarcely assuming a circular shape; narrow lines on the neck and breast more numerous.

Total length about 11.50 inches; wing, 7.50; tail, 3.00: culmen, about 1.10; tarsus, 1.95; middle toe, 1.15.

In general coloration this species resembles very closely the Golden Plover (*Charadrius dominicus*), but, besides being much larger and stouter built, may always be distinguished by the blackish axillars, these feathers being smoky gray in the Golden Plover.

This species, the largest of our Plovers, is more or less common during the migrations. In Cook county, according to Mr. Nelson, it "arrives in full breeding plumage the last of May and after lingering a few days the majority pass north. A few remain during the summer and undoubtedly breed. Returning early in September in fall plumage, they remain until well into October. While with us in the migrations this species is generally solitary, sometimes a half dozen individuals joining company, or a single specimen will be found leading a miscellaneous company of sandpipes and small plovers."

Subgenus **Charadrius** Linnæus.

Charadrius Linn. S. N. ed. 10, 1758, 150; ed. 12, 1766, 253. Type, *C. apricarius* Linn.

Char. Similar to *Squatarola*, but without any trace of hind toe. Plumage also very similar, but form rather more slender.

Only two species of *Charadrius* proper are known; one peculiar to the Palæarctic Region, but occurring accidentally in Greenland; the other spread over the remaining portions of the world, including the greater part of America, the islands throughout the Pacific, and the coasts of Asia. They differ chiefly in the color of the axillary feathers and the lining of the wings, which are white in *C. apricarius*, smoky gray in *C. dominicus*.

Charadrius dominicus (Müll.)

AMERICAN GOLDEN PLOVER.

Popular synonyms. Green Plover; Squeeler (Plymouth Bay, Mass.).

Charadrius dominicus Müller. Syst. Nat. Suppl. 1776, 116.—Ridgw. Nom. N. Am. B. 1881 No. 515; Man. N. Am. B., 1887, 174.—Coues, Check List, 2d ed. 1882, No. 581.—B B. & R. Water B. N. Am. i, 1884, 139.—A. O. U., Check List, 1886, No. 272.

Charadrius pluvialis Wilson, Am. Orn. vii, 1813, 71, pl. 50, fig. 6. (*nec* Linn.)—Swains. & Rich. F. B.-A. ii, 1831, 369.—Nutt. Man. ii, 1834, 16.—Aud. Orn. Biog. iii, 1835, 623.

Charadrius virginicus "Boeckhausen and Bechstein," Licht. Verz. Doubl. 1823, No. 729.—Cass. in Baird's B. N. Am. 1858, 690.—Baird, Cat. N. Am. B. 1859, No. 503.

Charadrius fulvus var. *virginicus* COUES, Key, 1872, 243; Check List, 1874, No. 326; Birds N. W. 1874, 449 (synonymy).

Charadrius marmoratus WAGL.—AUD. Orn. Biog. v, 1839, 575, pl. 300; Synop. 1839, 222; Birds Am. v, 1842, 203, pl. 316.

HAB. America in general, from the Arctic coast (including Greenland) to Paraguay and Chili; breeding in the arctic and subarctic districts, winter migrant to southern localities.

"SP. CHAR. Bill rather short, legs moderate, wings long, no hind toe, tarsus covered before and behind with small circular or hexagonal scales. *Summer plumage:* Upper parts brownish black, with numerous small circular and irregular spots of golden yellow, most numerous on the back and rump, and on the upper tail-coverts assuming the form of transverse bands generally; also with some spots of ashy white. Entire under parts black, with a brownish or bronzed lustre, under tail-coverts mixed or barred with white. Forehead, border of the black of the neck, under tail-coverts, and tibiæ, white; axillary feathers cinereous; quills dark brown; middle portion of the shafts white, frequently extending slightly to the webs and forming longitudinal stripes on the shorter quills; tail dark brown, with numerous irregular bands of ashy white, and frequently tinged with golden yellow; bill black; legs dark bluish brown. *Winter plumage (young and adult):* Under parts dull ashy, spotted with brownish on the neck and breast, frequently more or less mixed with black; many spots of the upper parts dull ashy white; other spots, especially on the rump, golden yellow.

"Total length, 9.50 inches; wing, 7.00; tail, 2.50; culmen, .92; tarsus, 1.70; middle toe, 90.

"Specimens vary in the relative amount of the black and golden on the upper parts, in the width of the white on the forehead, and other details of coloration. Careful measurements of twenty-six specimens afford the following results:—*Eleven specimens in summer plumage:* Wing, 6.80–7.35, average, 7.11; culmen, .85–1.00, average, .91; tarsus, 1.60–1.85, average, 1.73; middle toe, .85–1.05, average, .91. *Six adults in changing plumage:* Wing, 6.90–7.30, average, 7.12; culmen, .90–1.00, average, .96; tarsus, 1.65–1.82, average, 1.70; middle toe, .80–.95, average, .90. *Seven specimens in winter plumage (mostly young):* Wing, 6.80–7.20, average, 7.03; culmen, .80–1.00, average, .91; tarsus, 1.55–1.75, average, 1.66; middle toe, .85–.95, average, .87. *Average of the whole series:* Wing, 7.09; culmen, .91; tarsus, 1.70; middle toe, .90." (*Water B. N. Am.*)

In Cook county, this species is, according to Mr. Nelson, "a very abundant migrant," arriving "in large flocks early in April, and at this time the black of the breeding plumage has just begun to mottle their white breasts. Frequents wet praries until the last of the month, when it generally departs. Sometimes a few remain as late as May 5, and are then in perfect breeding dress. Returning early in September, with the fall plumage just appearing, it remains until October."

GENUS ÆGIALITIS BOIE.

SUBGENUS Oxyechus REICHENBACH.

Oxyechus REICH., Av. Syst. 1853, Introd. p. xviii. Type, *Charadrius vociferus* LINN.

CHAR. Bill small, slender, about equal to the middle toe (without nail); tarsus nearly twice as long as middle toe; tail long (about two thirds as long as the wings), reaching half its length beyond the ends of the primaries, graduated, the lateral feathers about 75 shorter than the middle pair; rump different in color from the back.

The single North American species of this subgenus differs conspicuously from the Plovers usually included together under *Ægialitis* in the broad, lengthened tail, and, so far as coloration is concerned, in the ochraceous rump and the pair of black bands across the breast. It may be remarked, however, that coloration alone is of slight importance as a character in this group.

The Old World species appear to belong here rather than with true *Ægialitis*, namely, *Charadrius tricollaris* VIEILL., of South Africa, and *C. nigrifons* CUVIER, of Australia. The former is much like a miniature Killdeer Plover, having two black pectoral bands, like *O. vociferus* (though their relative width is reversed, the posterior one being broader); the proportions and details of form are quite the same, but the rump and upper tail-coverts are concolor with the back. The Australian species agrees essentially with the above in size and proportions, but has broader and acuminate rectrices, and the tail is more nearly even, while the plumage is handsomer and more varied than in any other species of the group, the scapular region being adorned with a patch of rich maroon-chestnut, the upper tail-coverts rufous-chestnut, etc.

Ægialitis vocifera (Linn.)

KILLDEER.

Popular synonyms. Kill-dee; Killdeer Plover.

Charadrius vociferus LINN. S. N. ed. 10, i, 1758, 150; ed. 12, i, 1766, 253.—WILS. Am. Orn. vii, 1813, 73, pl. 59, fig. 6.—NUTT. Man. ii, 1834, 22.—AUD. Orn. Biog. iii, 1835, 191; v, 1839, 577, pl. 225; Synop. 1839, 222; B. Am. v, 1842, 207, pl. 317.

Ægialitis vociferus BONAP. 1838.—CASS. in Baird's B. N. Am. 1858, 692.—BAIRD, Cat. N. Am. B. 1859, No. 504.—COUES, Key, 1872, 244; Check List, 1874, No. 397; 2d ed. 1882, No. 584.

Ægialitis vocifera A. O. U. Check List, 1886, No. 273. RIDGW. Man. N. Am. B. 1887, 174.

Oxyechus vociferus REICH.—RIDGW. Nom. N. Am. B. 1881, No. 516.—B. B. & R. Water B. N. Am. i, 1884, 148.

HAB. The whole of temperate North America, migrating in winter into tropical America as far as Colombia; West Indies in general; Bermudas; River Avon, England (*fide* SCL., Ibis, 1862, 275; one specimen taken April, 1857).

SP. CHAR. *Adult.* Pileum and upper parts generally, grayish brown, inclining to umber; rump and upper tail-coverts ochraceous-rufous, lighter on the latter. Forehead and broad superciliary stripe, throat, nuchal collar, and lower parts, white. Fore part of the crown, loral stripe, continued toward occiput, collar round neck, and band across breast, black. Primaries dusky, the inner quills marked on outer webs with white. Tail chiefly pale ochraceous-rufous, variegated with white, dusky, and grayish, chiefly toward the end. Bill black; iris dark brown; eyelids (in life) orange-red or scarlet; legs and feet pale pinkish grayish, or pale grayish yellow.

"*Young.* Similar to adult, but feathers of the upper parts more or less conspicuously margined with pale rusty or fulvous.

"*Downy Young.* Upper parts generally, including pileum, light grayish brown, the two areas of this color bounded all around by black, a wide collar of which crosses the jugulum, and, extending across the nape beneath a broad white collar, completely encircles the neck; a broad bar of velvety black down the middle of the humeral region, and a narrow, more interrupted stripe of the same down the rump. Forehead, throat, lower parts generally, "hand-wing," and posterior border of the humerus, pure white, the flanks and crissum more isabella-color; a narrow black line running from the rictus to the eye.

Total length, about 10 inches; extent of wings, 20.50; wing, 6.50; tail, 3.50.

This common and well-known bird is found throughout the State, and is decidedly the most numerous member of its family except during the season of migration. It is a great nuisance to the gunner, being usually the first to take alarm at his approach, and starting up all birds in the vicinity by its loud cries.

"Like most of its race, this Plover passes much of its time on the ground, over which it moves with great rapidity. It can run with such swiftness that—according to Audubon—to run "like a Kildeer" has in some parts of the country passed into a proverbial phrase. The bird is also equally active on the wing, and mounts at pleasure to a great height in the air with a strong and rapid flight, which can be continued for a long distance. Sometimes it skims quite low over the ground, and at other times mounts to a great height; and during the love seasons it is said to perform various kinds of evolutions while on the wing.

"Its note consists of two syllables, resembling in sound *killdee,* rapidly enunciated; and occasionally, when the bird is much excited, only the last syllable is repeated after the first utterance of the double note. Generally it is sounded in a loud, clear tone, and as a signal of alarm. It not unfrequently startles other birds and puts them on their guard, this habit rendering the Kildeer an object of dislike to the gunner. During the summer—especially when it is breeding, and afterward, even when its young are fully grown—the Kildeer is a noisy and restless bird, and is disturbed by the near approach of man. It will often squat until one is close upon it, and will then suddenly fly up or run off, startling the unwary intruder by a loud and clear cry. According to Audubon, during the

winter it is an unusually silent bird. At this season it is found dispersed over the cultivated fields in Florida, Georgia, the Carolinas, and other Southern States, diligently searching for food." (BREWER.)

SUBGENUS Ægialitis BOIE.

Ægialitis BOIE, Isis, 1822, 558. Type, *Charadrius hiaticula* LINN.

CHAR. Similar to *Oxyechus*, but the species of smaller size, with shorter and less graduated tail (less than half as long as the wing), and rump concolor with the back (grayish).

The numerous species of this subgenus vary greatly among themselves in the details of structure, although there is a general similarity of coloration throughout the group. The North American species may be distinguished as follows:

A. Nape crossed by a more or less distinct white collar.

a. Bill decidedly shorter than middle toe, very stout (except in *Æ. dubia*), the basal half light colored (orange or yellow) in adults, except in *Æ. dubia*.

a'. A distinct web between base of inner and middle toes.

1. **Æ. semipalmata.** Above, grayish brown; forehead, ring round neck, and lower parts white. *In summer*, fore part of crown, lores, and broad pectoral collar (continued round back of neck, below the white nuchal collar) black or dusky. *In winter*, these black markings replaced by grayish brown, like the back, etc. *Young*, like winter adults, but bill wholly black, and feathers of upper parts margined narrowly with buff. Wing, about 4.50–4.75; culmen, .45–.50; depth of bill at base, .20; tarsus, .95; middle toe, .65–.70. *Hab.* Nearly the whole of America.

a''. No web between base of inner and middle toes.

2. **Æ. hiaticula.** Similar to *Æ. semipalmata*, but pectoral band broader. Wing, about 5.00; culmen, .50–.55; depth of bill at base, .20–.22; tarsus, 1.00; middle toe, .60–.65. *Hab.* Palæarctic region and portions of Arctic America.

3. **Æ. dubia.** Similar to *Æ. hiaticula*, but smaller and much more slender, especially the bill, which is entirely black; middle of crown crossed by a more or less distinct whitish bar, immediately behind the black patch. Wing, 4.35–4.70; culmen, .50–.52; depth of bill at base, .15–.18; tarsus, 1.00–1.05; middle toe, .55–.60. *Hab.* Palæarctic region generally; accidental in California and Alaska.

4. **Æ. meloda.** Above, pale brownish gray; forehead, lores, nuchal collar, and lower parts white. *In summer*, a band across fore part of crown, and one across each side of breast (the latter sometimes connected, so as to form a continuous pectoral band), black or dusky. *In winter*, these black markings replaced by light brownish gray, and the bill almost entirely, or wholly, black. *Young*, like the winter plumage, but feathers of upper surface with distinctly paler terminal margins. Wing, 4.50–4.80; culmen, .45–.50; depth of bill at base, .20–.22; tarsus, .85–1.00; middle toe, .55.

   α. meloda. Black pectoral band wholly or partially interrupted in the middle portion. *Hab.* Atlantic coast of United States.

   β. circumcincta. Black pectoral band continuous. *Hab.* Missouri River region of United States, straggling eastward.

b. Bill much longer than the middle toe, very slender, wholly black.

5. **Æ. alexandrina.** Above, light brownish gray; forehead, superciliaries, nuchal collar, and lower parts white. *In summer*, fore part of the crown, a transverse patch on each side of breast (and sometimes a loral streak), black or dusky; pileum sometimes (especially in adult males) buffy or rufescent. Bill, legs, and feet, black or dusky.

α. alexandrina. Lores always crossed by a dusky stripe. *In summer*, pileum brownish gray or dull buff. Wing, 4.40; culmen, .55–.60; tarsus, 1.02–1.12; middle toe, .55–.60. *Hab.* Europe, etc.

β. nivosa. Lores usually entirely white (never with a continuous or distinct dusky streak). *In summer*, pileum pale brownish gray or grayish buff. Wing, 4.20–4.30; culmen, .90; tarsus, .90–1.05; middle toe, .55–.60. *Hab.* Western America; Yucatan; Cuba.

B. Nape without trace of white or dusky collar.

a. Culmen equal to or longer than the middle toe, the bill slender.

6. **Æ. mongola.** *In summer*, whole breast and nape clear cinnamon-rufous, and top of head tinged with the same; lores, suborbital region, and auriculars black, the former bordered above by a white line, sometimes meeting over the forehead; chin, throat, foreneck, belly, and crissum pure white; upper parts brownish gray. *In winter*, the rufous entirely absent; forehead and lower parts white, the breast crossed by a faint grayish brown bar, darkening into a dusky patch on each side; auriculars and loral streak somewhat dusky. Wing, 5.15–5.40. *Hab.* Asia in general, breeding northward; Choris Peninsula, Alaska.

Ægialitis semipalmata (Bonap.)

SEMIPALMATED PLOVER.

Popular synonyms. Semipalmated Ring Plover; American Ring Plover; Ring-neck; Beach Bird.

Tringa hiaticula Wilson, Orn. vii, 1813, 65, pl. 59, f. 3 (*nec* Linn.).

Charadrius hiaticula Ord, ed. Wils. vii, 69.

Charadrius semipalmatus Bonap. Comp. List. 1838, 45.

Ægialitis semipalmatus Cab. 1856.—Cass. in Baird's B. N. Am. 1858, 694.—Baird, Cat N. Am. B. 1859, No. 507.—Coues, Key, 1872, 244; Check List, 1874, No. 399; 2d ed. 1882, No. 586.—Ridgw. Nom. N. Am. B. 1881, No. 517.

Ægialitis semipalmata B. B. & R. Water B. N. Am. i, 1884, 154.—A. O. U. Check List, 1886, No. 274.—Ridgw. Man. N. Am. B. 1887, 176.

Hab. North America in general, breeding in the arctic and subarctic districts, migrating south in winter throughout the tropical regions, as far as Brazil and Peru. Bermudas; whole of West Indies; Galapagos.

"Sp. Char. Small; wings long; toes connected at base, especially the outer to the middle toe. Front, throat, ring around the neck, and entire under parts white; a band of deep black across the breast, extending around the back of the neck below the white ring. Band from the base of the bill, under the eye, and wide frontal band above the white band, black. Upper parts ashy brown; quills brownish black, with their shafts white in middle portion, and occasionally a lanceolate white spot along the shafts of the shorter primaries; shorter tertiaries edged with white; greater coverts tipped with white. Middle feathers of the tail ashy brown, with a wide subterminal band of brownish black, and narrowly tipped with white; two outer tail feathers white, others intermediate, like the middle, but widely tipped with white. Bill orange-yellow at base, black terminally; legs pale flesh color. Female similar, but rather lighter colored. Young with the black replaced by ashy brown, the feathers of the upper parts bordered with paler. *Downy young.* Above, pale grayish brown, mottled with black; a frontal crescent, broad nuchal collar, and entire lower parts white.

"Total length, about 7 inches; wing, 4.75; tail, 2.25."

"Common during the migrations, generally in small flocks. In spring the migrations extend from April 25th to May 30th, and in fall from July 31st to the last of October. The 2d of July, 1873, I obtained several specimens of this species near Chicago.

From the condition of the abdomen and ovaries of one specimen, and the presence of several recently fledged young, I came to the conclusion that they had nested in the vicinity. It is barely possible however, that these birds were unusually early arrivals from more northern breeding grounds, although the arrivals from the north generally begin about the last of the month. My suspicions that the species either breed in this state, or at no far distant point, were strengthened the following season when several females examined the last of May contained eggs which would have been deposited within a short time." (NELSON.)

Ægialitis meloda circumcincta Ridgw.

BELTED PIPING PLOVER.

Popular synonyms. Ringed Piping Plover; White Ring-neck.

Ægialitis melodus var. *circumcinctus* RIDGW. Am. Nat. viii, 1874, 109.

Ægialitis meloda var. *circumcincta* COUES. Check List, 1874, App. p. 133, No. 400*a*; Birds N. W. 1874, 455.

Ægialitis melodus circumcinctus RIDGW. Nom. N. Am. B. 1881, No. 520*a*.—COUES, Check List, 2d ed. 1882, No. 588.

Ægialitis meloda, b. var. *circumcincta* B. B. & R. Water B. N. Am. i, 1884, 160.

Ægialitis meloda circumcincta A. O. U. Check List, 1886, No. 277 *a*.—RIDGW. Man. N. Am. B. 1887, 178.

HAB. Chiefly the Missouri River region, but also contiguous parts of the interior of North America.

"SP. CHAR. About the size of *Æ. semipalmata;* bill short, strong. *Adult male:* Forehead, ring around the back of the neck, and entire under parts, white; a band of black in front above the band of white; band encircling the neck before and behind, black, immediately below the ring of white on the neck behind. Head above and upper parts of body light brownish cinereous; rump and upper tail-coverts lighter, and often nearly white; quills dark brown, with a large portion of their inner webs and shafts white; shorter primaries with a large portion of their outer webs white; tail at base white, and with the outer feathers white; middle feathers with a wide subterminal band of brownish black, and tipped with white. Bill orange at base, tipped with black; legs orange-yellow. *Female:* Similar to the male, but with the dark colors lighter and less in extent. *Young:* No black band in front; collar around the neck ashy brown.

"Total length, about 7 inches; wing, 4.50; tail, 2 inches." (*Water B. N. Am.*)

"Very common summer resident along the lake shore, breeding on the flat, pebbly beach between the sand dunes and shore. Arrives the middle of April and proceeds at once to breeding.

"From a specimen shot the 24th of April, 1876, at Waukegan, I obtained a perfect egg, and the abdomen of several females obtained the same day exhibited unmistakable signs that they were already breeding, as did, also, the actions of the birds. Some thirty pairs were breeding along the beach at

this place, within a space of two miles, and I afterwards found the birds as numerous at several points along the shore. Every effort was made to discover their nests but without success, although the birds were continually circling about or standing at a short distance uttering an occasional note of alarm. The first of July, the year previous, Dr. Velie obtained young but a very few days old at this same locality, showing that there is considerable variation in the time of breeding. This was also shown by specimens obtained the last of May,—which I think were later arrivals than those found breeding in April,—having the ova just approaching maturity.

"Departs the last of September. The larger portion of the specimens examined show the complete ring of *circumcincta*, while others exhibit but little more black than in *meloda*, or have the complete ring of the former indicated by faint black tips to the feathers across the breast." (NELSON.)

Family SCOLOPACIDÆ.—The Snipe Family.

The characters of the family Scolopacidæ having been given in sufficient detail on p. 18, in the analysis of the families of Limicolæ, it is unnecessary to repeat them here. The Scolopacidæ are among the most widely dispersed of birds, a large proportion of the genera being nearly cosmopolitan. They embrace a very great variety of forms, from the diminutive "Peeps" (*Actodromas* and *Ereunetes*), smaller than a Sparrow, to the large Curlews, of Ibis-like stature and appearance. The bill may be either straight, bent upward, as in the Avocets (e. g. *Limosa* and *Terekia*), or strongly decurved like a sickle; narrowed at the end, or widely expanded into a paddle-shaped form (*Eurynorhynchus*). The legs may be short and stout (as in *Arquatella*, *Calidris*, etc.), or of almost stilt-like length (as in *Micropalama*, *Totanus*, etc.). Between these wide extremes of form, however, there are others possessing characters intermediate in almost every conceivable degree—so much so as to render it extremely difficult to tabulate the characters of the numerous genera. The following is an attempt at a diagnostic table of the North American genera.*

A. Bill longer than the tarsus and middle toe, straight.
B. Bill shorter than the tarsus and middle toe, straight or slightly curved (either up or down); wing lengthened, pointed.
C. Bill widely expanded laterally at the end.
D. Bill much longer than tarsus, decidedly decurved or arched.

A. (*Scolopacinæ.*)

a. Tibiæ completely feathered.
1. **Scolopax.** Outer quill longest, broad, like the others.
2. **Philohela.** Outer quill shorter than the sixth, the three outer primaries abruptly much narrower than the rest.

b. Tibiæ partly naked.
3. **Gallinago.** Toes all cleft to the base.
4. **Macrorhamphus.** A well-developed web between anterior toes, at base.

B. (*Tringinæ.*)

a. Feathers of the forehead not reaching to the nostril; anterior toes all webbed at the base.

* There are but two additional genera of this family in South America; viz., *Phegornis* Gray (type *Leptopus mitchelli* Fraser), and *Rhynchæa*.

5. **Micropalama.** Bill and legs much elongated, the former much compressed, except at end; tarsus twice as long as middle toe; size medium;
6. **Ereunetes.** Bill and legs moderately elongated, or rather short, the former scarcely, if at all, compressed; tarsus much less than twice the middle toe; size small.

b. Feathers on the forehead not reaching to the nostril; anterior toes all cleft to the base.

§. A well-developed hind toe.

7. **Tringa.**

Tarsus one third its length longer than the middle toe and claw; toes stout, the middle about half as long as the bill; bill stout, straight. Middle pair of rectrices not longer than the rest. Size rather large (wing more than 6.00) .....Subgenus *Tringa*.

Tarsus shorter than the middle toe and claw; toes slender, the middle two thirds or three fourths as long as the bill; bill slender, much compressed, straight, or very slightly decurved at the end; size medium (wing less than 6.00) .....Subgenus *Arquatella*

Tarsus about equal to the bill; bill straight, moderately slender; toes slender, the middle one decidedly shorter than the tarsus; size medium to very small.....Subgenus *Actodromas*.

Bill very long (nearly as long as the tarsus and the middle toe), decidedly decurved terminally; toes slender, the middle one decidedly shorter than the tarsus.....Subgenera *Pelidna* and *Ancylocheilus*.

§§. No hind toe.

8. **Calidris.** Size rather small; bill short, straight, expanded at end.

c. Feathers of forehead not reaching to nostril; a web between outer and middle toes at base (between all in *Symphemia*).

1.′ Gape not extending back of the culmen.

9. **Limosa.** Size large (wing 8.00 or more); bill much longer than tarsus, tapering toward the end, where slightly but decidedly upturned, the lateral groove extending nearly to the tip.

1.″ Gape extending decidedly back of the base of the culmen.

2.′ Lateral groove of the maxilla extending scarcely more than half way to end of bill.

3.′ Back of tarsus covered with transverse scutellæ, as in front.

10. **Totanus.** No web between inner and middle toes; size medium to large (but wing always less than 8 inches).

Middle toe not more than half as long as tarsus.....Subgenus *Totanus*.
Middle toe nearly as long as tarsus .....Subgenus *Helodromas*.

11. **Symphemia.** A well-developed web between base of inner and middle toes; a large white patch on base of primaries; size large (wing more than 8 inches).

3.″ Back of tarsus covered with small roundish scales.

12. **Heteractitis.** No web between base of inner and middle toes; size medium (wing less than eight inches).

2.″ Lateral groove of maxilla extending nearly to tip of bill.

13. **Pavoncella.** Size large (wing 7 inches or more); tail short (less than half the wing), rounded. *Adult male* with the neck ruffed and anterior portion of head bare.

14. **Bartramia.** Size large (wing nearly 7 inches); tail lengthened (more than half the wing), graduated. *Adult male* without ruff, the anterior part of the head normally feathered.

15. **Actitis.** Size small (wing less than 4.50); tail rather lengthened (more than half the wing), graduated.

d. Feathers of the forehead reaching to and partly enclosing the nostril; anterior toes all cleft at the base.

16. **Tryngites.** Size small (a little larger than *Actitis*); bill small and slender (shorter than the head, about equal to the middle toe), the lateral groove reaching nearly to the tip; gape reaching back of the culmen; middle toe more than half as long as the tarsus; inner webs of quills and under primary-coverts beautifully speckled.

C.

17. **Eurynorhynchus.** Size small (among the smallest of the family); bill widely expanded laterally at the end; otherwise, much as in *Actodromas*.

D. (*Numeninæ.*)

18. **Numenius.** Size large to very large (wing 7 inches or more); bill long (much longer than tarsus), decidedly decurved or arched.

Of the above, the following genera are not represented, so far as known, in the bird-fauna of Illinois: *Scolopax*, embracing the European Woodcock (*S. rusticola*), which is merely accidental in the Atlantic States; *Heteractitis*, which embraces two species of Wandering Tatler (*H. incanus* and *H. brevipes*), belonging to the shores and islands of the Pacific; and *Eurynorhynchus*, including only the remarkable Spoonbill Sandpiper (*E. pygmæus*), a bird of eastern Asia, which has occurred accidentally in Alaska.

Subfamily **Scolopacinæ.**

Char. Bill straight, longer than the tarsus and middle toe; back of tarsus with a continuous row of transverse scutellæ. Ears situated directly underneath the eyes; tip of upper mandible thickened, with cutting-edges brought near together; plumage the same at all stages and seasons.

Genus **PHILOHELA** Gray.

Philohela Gray, List Genera, 1841, 90. Type, *Scolopax minor* Gmel.

Char. Body very full, and head, bill, and eyes very large. Tibia short, feathered to joint. Toes cleft to base. Wings short, rounded, the three outer primaries very narrow and much attenuated; the fourth and fifth equal to the longest. Tarsi stout, shorter than the middle toe. Hind claw very short, conical, not extending beyond the toe. Tail of twelve feathers.

The present genus, embracing a single species, the American Woodcock, is much like *Scolopax*, with the European Woodcock as type, in color and external appearance. The most striking difference is seen in the wings, which are short, rounded; the fourth and fifth primaries longest and the outer three abruptly attenuated; while in *Scolopax* the wings are long, the first primary longest, and none attenuated.

Philohela minor Gmel.

AMERICAN WOODCOCK.

Popular synonyms. Bog-sucker; Mud Snipe; Blind Snipe.

Scolopax minor Gmel. S. N. i, 1788, 661.—Wils. Am. Orn. vi, 1812, 40, pl. 48, fig. 2.—Aud. Orn. Biog. iii, 1835, 474, pl. 268.

Rusticola (*Microptera*) *minor* NUTT. Man. ii, 1834, 194.

Philohela minor GRAY, Genera B. 1841, 90.—CASS. in Baird's B. N. Am. 1858, 709.—BAIRD, Cat. N. Am. B. 1859, No. 522.—COUES, Key, 1872, 251, fig. 162; Check List 1873, No. 412; 2d ed. 1882, No. 605; Birds N. W. 1874, 472.—RIDGW. Nom. N. Am. B. 1881, No. 525; Man. N. Am. B. 1887, 150.—B. B. & R. Water B. N. Am. i, 1884, 183.—A. O. U. Check List, 1886, No. 228.

Microptera americana AUD. Synop. 1839, 250; B. Am. vi, 1843, 15, pl. 352.

HAB. Eastern Province of North America, north to the British Provinces and west to Dakota, Nebraska, and Kansas; breeding throughout its known range; no extra-limital record, except the Bermudas.

SP. CHAR. Bill long, compressed, punctulated near the end; upper mandible longer than the under, and fitted to it at the tip; wings moderate, three outer quills very narrow; tail short; legs moderate; eyes inserted at an unusual distance from the bill. *Adult:* Occiput with three transverse bands of black, alternating with three much narrower ones of pale yellowish rufous; upper parts of body variegated with pale ashy, rufous, or yellowish red of various shades, and black; large space on front and throat reddish ashy; line from the eye to the bill, and another on the neck below the eye, brownish black; entire under parts pale grayish rufous, brighter on the sides and under wing-coverts. Quills ashy-brown; tail feathers brownish black, tipped with ashy, darker on the upper surface, paler and frequently white on the under; bill light brown, paler and yellowish at base; legs pale brownish. *Downy young:* General color light reddish buff or isabella-color, uniform on the lower surface. Line from bill to eye, a large, somewhat elliptical patch covering forehead and fore part of the crown, a patch on the occiput (connected with that on the crown by a narrow isthmus), and a narrow mark behind the eye, with an oblique one below it, very dark chestnut; broad stripe down the rump, also dark chestnut; stripe down the nape, and various large blotches on the back, wings, etc., rather light snuff-brown.

Total length about 11 inches; wing, 4.80–5.70; tail, 2.25; bill, 2.50 to nearly 3.00; tarsus, 1.25; middle toe, 1.37.

The American Woodcock is found throughout the State, in suitable localities, and though known chiefly as a summer resident remains throughout the year in well-sheltered places especially in the more southern districts.

"In its habits the Woodcock is nocturnal. It never flies voluntarily by day only when forced from its retreats, usually keeping in close and sheltered thickets, and resorting at twilight to its favorite feeding-places. It feeds almost exclusively during the night, as its sight is very imperfect by day. Its eye is remarkably large and handsome, but unfit to bear the glare of the sun, its full and almost amaurotic appearance plainly suggesting the crepuscular habits of the bird. During the greater portion of the day the Woodcock remains closely concealed in marshy thickets or in rank grass, but in the early morning or evening, and also on moonlight nights it seeks its food in open places, but during the day-time in dark and dense covert.

"The favorite places of resort of this species are low marshy grounds, swamps, and meadows with soft bottoms. During very wet seasons it seeks higher land—generally corn-fields

—and searches for food in the soft ploughed ground, where its presence is indicated by the holes made by its bill. In seasons of excessive drought the Woodcock resorts in large numbers to tide-water creeks, and the banks of fresh-water rivers; but so averse is it to an excess of water, that after continued or very heavy rains it has been known suddenly to disappear over widely extended tracts of country." (BREWER.)

A curious habit of the Woodcock, and one which is comparatively little known, is that of carrying its young in order to remove them from danger. This has been attested by so many reliable observers that there can be little doubt as to its truth.

GENUS **GALLINAGO** LEACH.

Gallinago LEACH, Cat. British Birds, 1816, 31. Type, *Scolopax major* LINN.

CHAR. Lower portion of the tibia bare of feathers, scutellate before and behind, reticulated laterally, like the tarsi. Nail of hind toe slender, extending beyond the toe. Bill depressed at the tip. Middle toe longer than tarsus. Tail with twelve to twenty-six feathers Plumage the same in winter and summer; young like the adult in colors and markings.

The more slender body, longer legs, partly naked tibia, and other features, distinguish this genus from *Scolopax* and *Philohela*, and the cleft toes from *Macrorhamphus*.

The species of *Gallinago* are quite numerous, about fifteen being recognized, this number nearly equally divided between America and various portions of the Old World. Of the seven American species, North America claims but two, the common Wilson's Snipe, or, as it is perhaps more popularly known, the "English Snipe," from its very close resemblance to the Common Snipe of Europe, and the latter species itself, which has been taken in Greenland. With a few exceptions, the various species resemble one another very closely in colors and markings,—in some cases so much so that it is necessary to resort to the rectrices in order to discover tangible points of difference.

The single species peculiar to North America has usually sixteen rectrices, of which the outer is not notably narrower than the rest; its nearest relative, the European *G. gallinago*, has usually but fourteen tail-feathers, of which the outer pair are differently marked from those of *G. delicata*; and the several South American species possess from fourteen to eighteen rectrices, of which the outer pair are very narrow.

Gallinago delicata (Ord).

WILSON'S SNIPE.

Popular synonyms. English Snipe; American Snipe; Gutter Snipe.

Scolopax gallinago WILSON, Am. Orn. vi, 1812, 18, pl. 47, f, 1 (*nec* LINN.).
Scolopax wilsoni TEMM. Pl. Col. v, 1824, livr. lxviii (in text).—SW. & RICH. F. B.-A. ii, 1831, 401.—NUTT. Man. ii, 1834, 185.—AUD. Orn. Biog. iii, 1835, 322; v, 1839, 583, pl. 243; Synop. 1839, 248; B. Am. v, 1842, 339, pl. 350.
Gallinago wilsoni BONAP. 1838.—CASS. in Baird's B. N. Am. 1858, 710.—BAIRD, Cat. N. Am. B. 1859. No. 523.—COUES, Key, 1872, 262; Check List, 1874, No. 414; 2d ed. 1882, No. 608; Birds N. W. 1874, 475.—B. B. & R. Water B. N. Am. i, 1884, 188.
Gallinago media wilsoni RIDGW. Nom. N. Am. B. 1881, No. 526.
Scolopax drummondi SW. & RICH. F. B.-A. ii, 1831, 400.—NUTT. Man. ii, 1834, 190.—AUD. Orn. Biog. v, 1839, 319; Synop. 1839, 240; N. Am. vi, 1843, 9.
Scolopax douglasii SW. & RICH. F. B.-A, ii, 1831, 400.—NUTT. Man. ii, 1834, 491.
Scolopax leucurus SW. & RICH. l. c. 501.—NUTT. l. c, 617.
Scolopax delicata ORD, Wils. Orn. ix, 1825, ccxviii.
Gallinago delicata RIDGW. in A. O. U. Check List, 1886, No. 230; Man. N. Am. B. 1887, 150.

HAB. The whole of North and Middle America, breeding from northern United States northward, migrating south in winter as far as Colombia and throughout the West Indies; Bermuda; accidental in England.

SP. CHAR. Bill long, compressed, flattened and slightly expanded toward the tip, punctulated in its terminal half; wings rather long; legs moderate; tail short. Entire upper parts brownish black, every feather spotted and widely edged with light rufous, yellowish brown, or ashy white; back and rump transversely barred and spotted with the same; a brownish white or pale buffy line from the base of the bill over the top of the head. Throat and neck before, dull reddish ashy; wing-feathers marked with dull brownish black; other under parts white, with transverse bars of brownish black on the sides, axillary feathers, under wing-coverts, and under tail-coverts; quills brownish black; outer edge of first primary white; tail glossy, brownish black, widely tipped with bright rufous, paler at the tip, and with a subterminal narrow band of black. Bill brown (greenish gray in life), paler at base and darker toward the end; legs dark brown (light greenish gray in life).

Total length, about 10.50 to 11.50 inches; extent, 16.50 to 17.00; wing, 5.00 to 5.60; tail, 2.60; bill, 2.50 to 2.70; tarsus, 1.25.

In a very large series of specimens from all parts of the continent north of Panama, no variations are noticeable other than what appear to be of a purely individual character, and these are seldom very pronounced.

This well-known bird is abundant, at the proper seasons, throughout the State. In Cook county, according to Mr. Nelson, it is "abundant during the migration and not a very rare summer resident. Arrives the first of April and nearly all are gone by the first of May. Returns in fall the first of September and departs by the first of November. Mr. T. H. Douglas has obtained its eggs near Waukegan, and while there in the spring of 1876, I found several pairs during the breeding season, in various portions of the marsh near that place.

"Morning and evening and throughout cloudy days in the early part of the breeding season the male has a curious habit of mounting high overhead, then descending obliquely for some distance, and as it turns upwards strikes rapidly with its wings, producing a loud whistling sound with each stroke. This manœuvre is repeated again and again, and appears to be performed for the same purpose as is the "booming" of the night hawk. Besides this sound the Wilson's Snipe has a peculiar, sharp cry during the season, which is uttered when the bird is disturbed. I first became acquainted with the note in May, 1876, when, while walking along a marshy strip of land, I was surprised to hear a loud *ka-ka-ka-ka-ka*, uttered with great force and in a rather loud, harsh tone. Turning quickly I was still more astonished to find the author to be one of these birds. It was flying restlessly from post to post along a fence and showed the greatest uneasiness at my presence, the notes being repeated at short intervals. Although its nest was probably near, I could not discover it."

SUBFAMILY **TRINGINÆ.**

CHAR. Ears situated decidedly posterior to the eyes; tip of upper mandible thin, with cutting edges far apart; plumage very different in winter and summer, and young different in color from adult.

GENUS **MACRORHAMPHUS** LEACH.

Macrorhamphus LEACH, Cat. Brit. Birds, 1816, 31. Type, *Scolopax grisea* GMEL.

CHAR. General appearance of *Gallinago*. Tarsi longer than middle toe; a short web between the base of outer and middle toes. Plumage very different in winter and summer; young different from the adult.

The membrane at the base of the toes will at once distinguish this genus from *Gallinago*, though there are other characters involved.

The two North American species of this genus* are characterized as follows:

COMMON CHARACTERS. About the size of *Gallinago delicata*, or larger. Bill long, compressed, flattened and expanded toward the end, where (in dried specimens) punctulated and corrugated. Shaft of first primary strong, pure white. Axillars, tail-coverts, and lower part of rump, white, barred, or transversely spotted, with slate-color; upper part of rump white, usually immaculate. Tail slaty or dusky, barred with white (or, in summer adult, with pale cinnamon on the middle feathers). *Adult in summer:* Head, neck, and lower parts light cinnamon (the abdomen sometimes whitish), the foreneck and sides of breast speckled, the sides and crissum barred or speckled with dusky. Upper parts mixed black, light cinnamon, and white, the former prevailing. *Adult in winter:* Belly and anal region white, usually unspotted; rest of the plumage nearly uniform ash-gray, somewhat inter-

*A third species, *M. semipalmatus* BLYTH, occurs in eastern and southern Asia. It is much larger than its American relatives, and belongs to the subgenus *Pseudoscolopax* BLYTH.

mixed with white on the breast and sides; wing-coverts bordered with whitish; a whitish superciliary stripe. *Young, first plumage:* Back, scapulars, and tertials, variegated black and light clay-color, the latter chiefly on the edges of the feathers; lower parts dirty white, soiled with dull buff or pale clay color, especially across the breast; jugulum and sides usually indistinctly speckled with dusky. Total length, about 10 to 12.50 inches; extent, 17.50 to 20.25; wing, 5.30–6.00 (5.73); culmen, 2.00–3.00; tarsus 1.25–1.75 (1.53); middle toe, 90–1.10 (1.00).

1. **M. griseus.** Wing, 5.22–5.90 (5.65); culmen, 2.00–2.55 (2.30); tarsus, 1.20–1.55 (1.35 ; middle toe, .90–1.05 (.95).* *Adult in summer.* Abdomen whitish; breast and sides speckled with dusky. *Hab.* Eastern Province of North America.

2. **M. scolopaceus.** Wing, 5.40–6.00 (5.74); culmen, 2.10–3.00 (2.72); tarsus, 1.30–1.75 (1.58); middle toe, .95–1.15 (1.01).† *Adult in summer.* Abdomen uniform cinnamon, without markings; breast speckled (usually scantily), and sides barred with dusky. *Hab.* Mississippi Valley and Western Province of North America, from Mexico to Alaska.

Macrorhamphus griseus (Gmel.)

DOWITCHER.

Popular synonyms. Gray Snipe; Gray-back; Dowitch; Driver (Plymouth Bay Mass.).

Scolopax griseus GMEL. S. N. i, 1788, 658.

Macrorhamphus griseus LEACH, Syst. Cat. Brit. Mam. & B. 1816, 31.—CASS. in Baird's B. N. Am. 1858, 712.—BAIRD, Cat. N. Am. B. 1859, No. 524.—COUES, Key, 1872, 253; Check List, 1874, No. 415; 2d ed. 1882, No. 609; Birds N. W. 1874, 476.—RIDGW. Nom. N. Am. B. 1881, No. 527; Man. N. Am. B. 1887, 151.—A. O. U. Check List, 1886, No. 231.

Scolopax (Macrorhamphus) grisea BONAP. 1828.—NUTT. Man. ii, 1834, 181.

Macrorhamphus griseus, a, griseus B. B. & R. Water B. N. Am. i, 1884, 196.

Scolopax noveboracensis GMEL.—WILS. Am. Orn. vii, 1813, 45, pl. 68. fig. 1.—SW. & RICH. F. B.-A. ii, 1831, 398.—AUD. Orn. Biog. iv, 1838, 388, pl. 399; Synop. 1839, 249; B. Am. vi, 1843, 10, pl. 351.

HAB. Eastern Province of North America (breeding in the region about Hudson's Bay?).

SP. CHAR. About the size of *Gallinago delicata*. Shaft of the first primary strong, pure white; axillars, tail-coverts, and lower part of rump white, barred or transversely spotted with slate-color; upper part of rump white, usually immaculate; tail slate-colored or dusky, barred with white, (or, in summer adult, with a pale cinnamon on middle feathers). *Adult in summer:* Head, neck, and more or less of lower parts, light cinnamon, the abdomen whitish, breast and sides speckled with dusky, the head and neck streaked with the same; upper parts mixed black, light cinnamon and white, the first prevailing. *Winter plumage:* Belly and anal region white, usually unmarked; rest of plumage nearly uniform ash-gray, somewhat mixed with white on breast and sides; a whitish superciliary stripe, and wing-coverts bordered with white. *Young:* Back, scapulars, and tertials, varied with black and light clay-brown, the latter chiefly on edges of the feathers: lower parts dull whitish, soiled with dull buff or clay-color, especially across breast, the jugulum and sides usually indistinctly speckled with dusky. "Bill dark olive; iris reddish hazel; feet light yellowish olive; claws black." (AUDUBON.)

Wing, 5.25–5.90 (5.65); culmen, 2.00–2.55 (2.30); tarsus, 1.20–1.55 (1.35); middle toe, .90–1.05 (.95).

Comparatively little is on record respecting the habits of this species. It is apparently more abundant along the Atlantic coast than in the interior, but its presence in Illinois is attested by specimens in the National Museum collection, received from Mr. H. K. Coale, and collected by him near Chicago. Along the

* Extremes and average of eighteen fully adult specimens.

† Extremes and average of forty fully adult specimens.

coast it is known to sportsmen as the Dowitcher, Dowitch, or Gray-back, and in the latter part of summer, when the immense flocks move southward, it is a favorite game bird.

Macrorhamphus scolopaceus (Say).

LONG-BILLED DOWITCHER.

Popular synonyms. Greater Long-beak; Greater Gray-back; Red-bellied Snipe.

Limosa scolopacea SAY, Long's Exped. ii, 1823, 170.
Macrorhamphus scolopaceus LAWR. Ann. Lyc. N. Y. v, 1852, 4, pl. 1 (Long Island).—CASS. in Baird's B. N. Am. 1858, 712.—BAIRD, Cat. N. Am. B. 1859, No. 525.—A. O. U. Check List, 1886, No. 232.—RIDGW. Man. N. Am. B. 1887, 151.
Macrorhamphus griseus var. *scolopaceus* COUES, Check List, 1874, No. 415*a*.
Macrorhamphus griseus scolopaceus RIDGW. Nom. N. Am. B. 1881, No. 527*a*.—COUES, 2d Check List, 1882, No. 610.
Macrorhamphus griseus, b, scolopaceus B. B. & R. Water B. N. Am. i, 1884, 196.
Scolopax longirostris BELL, Ann. Lyc. N. Y. v, 1852, 3.
Macrorhamphus griseus (part) COUES, Key, 1872, 253; B. N. W. 1874, 476.

HAB. North America in general, but chiefly the western portions of the continent; east to the Mississippi Valley, north to Alaska, and south to South America and the West Indies. Occasional along the Atlantic coast of the United States during migrations.

SP. CHAR. *Adult in summer:* Similar to *M. griseus*, but abdomen pale cinnamon, like rest of lower parts, and without markings, the breast scantily speckled and the sides barred with dusky. *Winter plumage and young:* Distinguishable from the corresponding stages of *M. griseus* only (?) by larger size.

Wing, 5.40–6.00 (5.74); culmen, 2.19–3.00 (2.72); tarsus, 1.35–1.75 (1.58); middle toe, .97–1.15 (1.01).

So far as known the habits of this species are essentially the same as those of the *M. griseus*. We have at present no means of knowing which is the commoner form in Illinois, but in all probability the present one is that which predominates. It is rather a straggler along the Atlantic coast, where, however, many specimens have been taken.

GENUS MICROPALAMA BAIRD.

Micropalama BAIRD, B. N. Am. 1858, 726. Type, *Tringa himantopus* BONAP.

"CHAR. Form slender, the legs very long, the bill long and much compressed, the anterior toes all webbed at the base. Tarsus nearly twice as long as the middle toe, which is a little shorter than the bare portion of the tibia, this scutellate before and behind, like the tarsus. Bill slender, straight, about equal to the tarsus, greatly compressed, except at the end, which is decidedly expanded laterally. Tail nearly even, but the central and exterior feathers usually perceptibly longer than the rest. Wings long and pointed.

"The present genus with a basal membrane to all the anterior toes, as in *Ereunetes*, has this a little more deeply emarginate; the bill and legs much longer; the former more curved. The bare portion of tibia is covered before and behind by transverse scutellæ, like the tarsus. The tail is nearly even, with a double

emargination. The middle toe is not two thirds the length of the tarsus, and about equal to the bare portion of the tibia. The bill is much pitted at the end in the dry skin.

"In many respects this genus approaches the Snipe, and its true place is probably very near *Macrorhamphus*. The legs, however, are much longer, and equal to the bill, instead of much shorter." (*Water B. N. Am.*)

Micropalama himantopus (Bonap.)

STILT SANDPIPER.

Popular synonyms. Long-legged Sandpiper; Frost Snipe (coast Connecticut).

Tringa himantopus Bonap. Ann. Lyc. N. Y. ii, 1826, 157.—Sw. & Rich. F. B.-A. ii, 1831, 380.—Aud. Orn. Biog. ii, 1838, 332, pl. 334; Synop. 1839, 235; B. Am. v, 1842, 271, pl. 334.

Tringa (Hemipalama) himantopus Bonap. 1827.—Nutt. Man. ii, 1834, 138.

Micropalama himantopus Baird, B. N. Am. 1858, 726; Cat. N. Am. B. 1859, No. 536.—Coues, Key, 1872, 253; Check List, 1874, No. 416; 2d ed. 1882, No. 611; Birds N. W. 1874, 480.—Ridgw. Nom. N. Am. B. 1881, No. 528; Man. N. Am. B. 1887, 152.—B. B. & R. Water B. N. Am. i, 1884, 201.—A. O. U. Check List, 1886, No. 233.

Tringa douglasii Sw. & Rich. F. B.-A. ii, 1831, 379, pl. 66.

Tringa (Hemipalama) douglasii Nutt. Man. ii, 1834, 141.

Tringa (Hemipalama) auduboni Nutt. l. c. 141.

Hab. Eastern Province of North America, Middle America, and greater part of South America; breeding north of the United States and visiting the southern localities in winter; Bermudas; West Indies, in general; Brazil; Peru. Not recorded from west of the Rocky Mountains.

Sp. Char. *Adult, summer plumage:* Above, variegated with black, whitish gray, and pale buff, the first prevailing on the back and scapulars; wings rather dark gray, the feathers edged with paler; primaries dusky slate; rump grayish, the feathers with darker centres; upper tail-covers white, the longer ones barred, the anterior ones longitudinally marked, with dusky. Middle tail-feathers light gray, the others varied longitudinally with white and pale gray. Pileum dusky, streaked with whitish; a dark brown loral stripe, from base of maxilla to the eyes; auriculars and patch on each side of the occiput, light cinnamon-rufous. Lower parts dirty white, the throat and jugulum streaked, other portions transversely barred with dusky. Lining of the wing, and axillars, white, the latter slightly marked with gray. *Adult in winter:* Above, uniform ash-gray, the upper tail-coverts, tail and wings as in the summer plumage. Supercillary stripe and lower parts white, the jugulum, sides of neck, and crissum, streaked with gray. *Young:* Back and scapulars blackish, all the feathers widely bordered with buffy white; the middle of the back tinged with rusty; wing-coverts bordered with pale buff and white; upper tail-coverts nearly immaculate white. Pileum streaked with dusky, pale buff, and grayish; nape nearly uniform ash gray. Lower parts soiled white, the breast and sides more or less strongly suffused with buff, the jugulum, sides of the neck, and flanks, indistinctly streaked with grayish. "Bill black; iris brown; feet dull yellowish green, claws black." (Audubon.)

Wing about 5.00–5.25; culmen, 1.50–1.75; tarsus, 1.50–1.75; middle toe, .80–.85.

We have no data at hand regarding the abundance of this species in Illinois, but it is in all probability a more or less common migrant.

"It moves in compact flocks, and often when about to alight, or after being disturbed, it inclines the body to either side, showing

alternately the upper and the lower parts. On foot it moves more like a Curlew than a *Tringa*, and is more sedate in its motions than the true Sandpiper. At times, on being approached, it will squat on the ground after the manner of the Esquimaux Curlew. Its flesh is said to be extremely delicate. In the stomachs of those he killed he [Audubon] found small worms, minute shell-fish, and vegetable substances, among which were hard seeds of some unknown plant. He found great differences in the color of the plumage of those he killed. He adds that its passage through the United States is very rapid, both in spring and in autumn. A few are said to spend the winter in lower Louisiana, but nearly all pass on southward beyond Texas."

Genus **TRINGA** Linnæus.

Subgenus **Tringa.**

Tringa Linn. S. N. ed. 10, 1758, 148; ed. 12, 1766, 247. Type, *T. canutus* Linn.

Char. Body robust; bill and legs short, the former straight, widened terminally, and scarcely longer than the head; tarsus about equal to the bill; or a little shorter; middle toe about two-thirds the tarsus. Wings long and pointed, reaching beyond the end of the tail.

The above characters separate at once this subgenus from *Arquatella*, the one most nearly related, but which has the bill much more compressed, slightly but decidedly decurved toward the end, and much longer than the tarsus; the latter scarcely, if any, longer than the middle toe; the wings shorter, etc. The single species, *T. canutus*, is the largest of American Sandpipers.

Tringa canutus (Linn.)

KNOT.

Popular synonyms. Robin Snipe; Knot Sandpiper; Red-breast(adult); Gray-back (young).

Tringa canutus Linn. S. N. ed. 10, 1758, 149; ed. 12, 1766, 251.—Cass. in Baird's B. N. Am. 1858, 715.—Baird, Cat. N. Am. B. 1859, No. 526.—Coues, Key, 1872, 256; Check List, 1874, No. 426; 2d ed. 1882, No. 626; Birds N. W. 1874, 490.—Ridgw. Nom. N. Am. B. 1881, 529; Man. N. Am. B. 1887, 153.—B. B. & R. Water B. N. Am. i, 1884, 211.—A. O. U. Check List, 1886, No. 234.

Tringa cinerea Brünn. Orn. Bor. 1764, 53.—Wils. Am. Orn. vii, 1813, 36, pl. 57, fig. 2.—Sw. & Rich. F. B.-A. ii, 387.—Nutt. Man. ii, 1834, 125.

Tringa islandica Gmel. S. N. i, 1788, 682.—Aud. Orn. Biog. iv, 1838, 130, pl. 315; Synop. 1839, 232; B. Am. v, 1842, 254, pl. 328.

Tringa rufa Wils. Am. Orn. vii, 1813, 43, pl. 57, fig. 5.

Hab. Chiefly northern portion of the northern hemisphere, but occasionally visiting the southern hemisphere during winter migration; chiefly littoral, but occurring also on the larger inland waters. Brazil; Australia; New Zealand.

SP. CHAR. Largest of American Sandpipers (*Tringinæ*). Bill straight, rather longer than the head, widened terminally, slightly compressed basally; tarsus about equal to the bill, or a little longer; middle toe about two thirds the tarsus; toes flattened beneath, with a rather wide lateral margin; lower third of the tibia bare, but the tips of the feathers reaching to the joint. Wings long and pointed, extending beyond the tail, which is short, and slightly graduated. *Adult in summer:* Above, mixed black, light gray, and pale rusty; these colors varying in relative extent with the individual, but the grayish usually prevailing; rump and upper tail-coverts white, with narrow bars and spots of blackish. Lower parts, and a distinct superciliary stripe, uniform vinaceous-rufous, or pinkish cinnamon, paler on the middle of abdomen; crissum, flanks, axillars, and lining of the wing white, usually with spots and bars of dusky. Primaries dusky, with white shafts; tail-feathers plain grayish, edged with whitish, and sometimes with a sub-edging of dusky. *Young:* Above light ash-gray, darker on the back, each feather bordered with whitish and marked with a sub-edging of dusky; upper tail-coverts white, marked with dusky crescents. Lower parts whitish (nearly pure white on the abdomen), the neck and breast marked with streaks and flecks of dusky, the sides with dim crescentic and irregular spots of the same. An indistinct whitish superciliary stripe. "Bill and feet black; iris dark hazel" (AUDUBON).

Total length, about 10 inches; wing, 6.50; tail, 2.50; bill, from gape, 1.50; tarsus, 1.25.

Adult specimens vary individually in the relative extent of the black, gray, and reddish colors on the upper parts; gray usually predominates in the spring, the black in midsummer. Sometimes there is no rufous whatever on the upper surface. The cinnamon-color of the lower parts also varies in intensity.

So far as known, the occurrence of the Knot in Illinois is confined to the shores of Lake Michigan, but it no doubt sometimes visits the shores of the larger rivers. Mr. Nelson says:

"This is another of the so-called 'maritime species' which regularly visits its breeding grounds by way of the Great Lakes, as well as along the coast. It is not a common but a regular migrant, passing north during May. It returns early in September and remains until October. I have never observed it away from the vicinity of the lake shore, where it is generally found in company with one or two others of the same family"

SUBGENUS **Arquatella** BAIRD.

Arquatella BAIRD, B. N. Am. 1858, 717. Type, *Tringa maritima* BRÜNN.

CHAR. Form very compact or robust, the legs especially. Tarsus shorter than the middle toe, with claw, the latter two thirds to three fourths as long as the bill, which is slender, much compressed, straight, or very slightly decurved at the end. Size medium (wing less than 6 inches).

Although three species of this subgenus belong to North America, only one of them is known to visit the eastern United States, the other two occurring in the extreme northwest, one of them, (*A. ptilocnemis* Coues), confined mainly to the Prybilov Islands.

Tringa maritima Brünn.

PURPLE SANDPIPER.

Popular synonyms. Winter Snipe (Maine); Rock Snipe.

Tringa maritima BRÜNN. Orn. Bor. 1764, 54.—SW. & RICH. F. B.-A. ii, 1831, 382.—NUTT. Man. ii, 1834, 115.—AUD. Orn. Biog. iii, 1835, 558, pl. 284; Synop. 1839, 233; B. Am. v, 1842, 261, pl. 330.—CASS. in Baird's B. N. Am. 1858, 717.—BAIRD, Cat. N. Am. B. 1859, No. 528.—COUES, Key, 1872, 255; Check List, 1877, No. 423; B. N. W. 1874, 488.—A. O. U. Check List, 1886, No. 235.—RIDGW. Man. N. Am. B. 1887, 153.

Arquatella maritima RIDGW. Bull. Nutt. Orn. Club, v, July, 1880, 162; Nom. N. Am. B. 1881, No. 530.—COUES, Check List, 2d ed. 1882, No. 620.—B. B. & R. Water B. N. Am. i, 1884, 217.

HAB. Northeastern portions of North America, breeding in the high north, and migrating southward in winter to the Middle States, the Great Lakes, and shores of the larger streams in the Mississippi Valley. Bermudas? Also, the northern portion of the Palæarctic Region.

SP. CHAR. *Adult, breeding plumage:* Above, dusky slate, the scapulars and interscapulars nearly black, and faintly glossed, the edge of each feather notched or indented with ochraceous or dull buff, the terminal portion bordered with dull white or pale buff; rump, upper tail-coverts, and middle tail-feathers glossy dusky-black, the feathers of the rump sometimes faintly bordered with grayish; remaining rectrices uniform grayish, with white shafts, the shade of gray becoming gradually lighter to the exterior feather. Lesser and middle wing-coverts bordered terminally with grayish white or pale ash; greater coverts tipped with pure white, forming a distinct bar across the wing; secondaries narrowly tipped with white and faintly edged with light ashy, the three or four feathers adjoining the tertials mostly white; primaries with white shafts, the inner quills edged, especially toward the base, with white. Pileum dusky, streaked with pale grayish buff (these streaks sometimes nearly obsolete); a conspicuous superciliary stripe of grayish white, streaked with dusky; a broad grayish dusky streaked stripe across the lores, from the bill to and beneath the eye, and continued rather indistinctly across the auriculars; cheeks, lower part of throat, and foreneck grayish white, streaked with grayish dusky; chin, and sometimes upper part of throat, unstreaked white; jugulum similarly but more broadly streaked; breast grayish white or pale ashy, irregularly spotted with dusky, these spots occupying chiefly the central portion of each feather; remaining lower part white, the sides irregularly streaked and spotted with grayish; crissum narrowly streaked with dusky; axillars and lining of the wing pure white, the latter bordered externally with grayish. "Bill brown, yellow at base; tarsi and toes dusky yellow; iris brown." (KUMLIEN, MS.) [Bill and legs dusky in dried skins.*] *Winter dress:* Above, uniform smoky plumbeous, the scapulars, interscapulars, rump feathers, and upper tail-coverts, darker centrally, where glossed with purple; wings and tail as in the summer plumage. Head and neck uniform smoky plumbeous, darker immediately before the eye, and, to a less extent, on the crown; the chin and upper part of throat, lower eyelid, and supraloral space, white; jugulum and breast light smoky plumbeous, squamated with white; remaining lower parts white, the sides broadly streaked with light brownish gray; crissum with narrow mesial streaks of dusky. *Young, first plumage:* Above, quite similar to the breeding adult, but the dorsal feathers lacking the lateral ochraceous indentations, and the light borders to the feathers rather more regular, and more creamy in tint, the light borders to the wing-coverts also broader, and pale grayish buff instead of white or pale ashy; nape and cheeks uniform smoky plumbeous; lower parts much as in the summer adult. *Downy young:* Above, brown, lighter and more grayish on the nape; the brown irregularly marbled with black; the wings, back, and rump thickly bespangled with whitish downy flecks on the tips of the down-tufts. Head pale fulvous, variously marked with black, the crown deep brown, variegated with black. Beneath, entirely grayish white.

Total length, about 9 inches; wing, 4.85-5.40 (5.06); culmen, 1.10-1.45 (1.20); tarsus, .90–1.00 (.99); middle toe, .83–.95 (.90). [Extreme and average dimensions of 13 adults.]

*Audubon says: "Bill deep orange, toward the end dusky; edges of eyelids gray; iris orange; feet light orange, claws dusky."

This is another of the "maritime," or, more properly littoral, species, which visits the shore of Lake Michigan, in Illinois. Mr. Nelson says that it is a "very rare migrant during migrations," and that "a fine adult male obtained on the Lake shore, near Chicago, November 7th, 1871, is in the collection of Dr. J. W. Velie. When first seen it was in company with a flock of Sanderlings." "This," adds Mr. Nelson, "is the only instance of the occurrence of this species of which I have learned."

Subgenus **Actodromas** Kaup.

Actodromas Kaup, Sk. Ent. Eur. Thierw. 1829, 37. Type, *Tringa minuta* Leisl.
Heteropygia Coues, Proc. Phila. Acad. 1861, 191. Type, *Tringa bonapartei* Schleg.=*T fuscicollis* Vieill.
Leimonites Kaup, l. c. Type, *Tringa temmincki* Leisl.
Delopygia Coues, Proc. Phila. Acad. 1861, 190 (=*Heteropygia*).

Char. Size medium to very small (smallest of the family); form graceful, legs and bill slender, the latter straight, and little, if any, longer than the tarsus. Tarsus decidedly longer than the middle toe with its claw; toes slender, completely cleft. Wings long and pointed, their ends when closed reaching beyond the tip of the tail.

Although the species of this subgenus vary greatly in size, they all agree very closely in the details of structure. Besides the American species included in the following synoptical table, there are several Old World *Actodromi*, among which may be named *Tringa minuta* Leisl., *T. damacensis* (Horsf.)*, and *T. albescens*, Temm., all nearly allied to, though quite distinct from, our *A. minutilla*. The American species may be distinguished as follows:

A. Size large (wing more than 5.50).

1. **A. cooperi.** Tail even, the middle feathers scarcely narrowed at the end, and not projecting notably beyond the rest. Lower parts white, the jugulum, breast, and sides longitudinally flecked with dusky. Above (in adult), brownish gray, the feathers marked centrally with black, producing conspicuous spots on the back and scapulars, streaks elsewhere. Upper tail-coverts white, with irregular sagittate marks of dusky. Wing, 5.80; culmen, 1.25; tarsus, 1.20; middle toe, .80. *Hab.* Long Island.

B. Size medium (wing less than 5.50 and more than 4.00).

2. **A. fuscicollis.** Tail as in *A. cooperi*, but middle feathers slightly narrower at end and more projecting. Colors of adult as in *A. cooperi*, but more tinged with light rufous on crown, back, and scapulars. *Young:* Back and scapulars mixed black and rusty, the feathers conspicuously bordered terminally with white; upper tail-coverts white, in marked contrast with the dusky rump; breast light grayish-brown, streaked with dusky. Wing about 4.90; culmen, .90–1.00; tarsus, .95–1.00; middle toe, .70–.75. *Hab.* Eastern North America; South America in migrations.
3. **A. bairdii.** Tail as in *A. fuscicollis*. Upper tail-coverts dusky, only the lateral ones whitish. *Adult in summer:* Back and scapulars black, irregularly variegated (spotted and edged) with dull buff. Jugulum white, streaked with dusky. *Adult*

*This species has been taken in Alaska since the above was written.

in winter: Above nearly uniform grayish brown, tinged with clay-color; jugulum and sides deeply suffused with clay-color or dirty buff, the former very indistinctly streaked. *Young:* Above, light buffy brown, streaked with dusky, the feathers of the back and the scapulars blackish, conspicuously bordered terminally with dull white; wing-coverts dark grayish, also bordered terminally with white or light buff. Jugulum suffused with buff and indistinctly streaked. Wing, about 4.75–5.00; culmen, about .90; tarsus, .90; middle toe, .70. *Hab.* Western America, from the arctic regions to Patagonia; straggler in eastern North America.

4. **A. maculata.** Middle tail-feathers wedge-shaped at the end and projecting a quarter of an inch or more beyond the rest. Upper tail-coverts dusky, like the rump, the outer feathers whitish, marked with dusky. Jugulum and breast light clay-color, streaked with dusky. *Adult:* Above, without white markings. *Young:* Scapulars bordered terminally with white. Wing, about 5.00; culmen, 1.10; tarsus 1.00–1.10; middle toe, .90. *Hab.* America in general, breeding in the arctic regions.

5. **A. acuminata.** Similar to *A. maculata*, but with the middle tail-feathers still narrower and more pointed, the bill smaller, the jugulum and breast scarcely streaked; lower tail-coverts marked with shaft-streaks of dusky (entirely absent in *maculata*); pileum deep rusty, in strong contrast. *Adult in winter:* Upper parts brownish gray, the feathers marked centrally with blackish; jugulum and breast pale grayish buff, very sparsely streaked; pileum cinnamon-brown streaked with blackish. *Young:* Above, rusty fulvous, the feathers of the back and the scapulars black centrally, the larger feathers edged terminally with white; pileum bright rusty rufous, in very sharp contrast with a whitish superciliary tripe, and streaked with black; throat immaculate white; jugulum and breast deep rusty ochraceous, the former narrowly streaked anteriorly. Wing, about 5.00; culmen scarcely 1.00; tarsus, 1.20; middle toe, .85. *Hab.* Australia, etc.; abundant in autumn on coast of Alaska.

C. Size very small (wing less than 4.00).

6. **A. minutilla.** Middle tail-feathers slightly projecting, narrow and somewhat pointed at end in summer, broader and rounder in winter plumage. Upper tail-coverts blackish, the lateral ones white, marked with dusky. *Adult in summer:* Back and scapulars black, the feathers bordered and irregularly barred with rusty ochraceous; tertials bordered with the same. Jugulum dull white, streaked with dusky. *Adult in winter:* Above uniform brownish gray, the feathers with indistinct dusky mesial streaks, most distinct on the back. Jugulum pale grayish indistinctly streaked. *Young:* Similar to the adult in summer, but the scapulars and exterior feathers of the back bordered terminally on outer webs with white and lacking the concealed ochraceous bars. Jugulum very indistinctly streaked as in the winter plumage. *Hab.* North America, migrating into South America in winter.

Tringa maculata Vieill.

PECTORAL SANDPIPER.

Popular synonyms. Jack Snipe; Grass Snipe; Marsh Plover; Meadow Snipe; Creaker.

Tringa maculata VIELL. Nouv. Dict. xxxiv, 1819, 465.—CASS. in Baird's B. N. Am. 1858, 720.—BAIRD, Cat. N. Am. B. 1859, No. 531.—COUES, Key, 1872, 255; Check List, 1874, No. 420; B. N. W. 1874, 486.—A. O. U. Check List, 1886, No. 239.—RIDGW. Man. N. Am. B. 1887, 156.

Actodromas maculata COUES, Proc. Acad. Nat. Sci. Phila. 1861, 179, 230; Check List. 2d ed. 1882, No. 616.—RIDGW. Nom. N. Am. B. 1881, No. 534.—B. B. & R. Water B. N. Am. i, 1884, 232.

Tringa pectoralis SAY, Long's Exp. i, 1823, 171.—NUTT. Man. ii, 1834, 111.—AUD. Orn. Biog. iii, 1835, 601; v, 1839, 582, pl. 294; Synop. 1839, 232; B. Am. v, 1842, 259, pl. 329.

HAB. The whole of North and the greater part of South America, ranging south in winter to southern Brazil and Chili; West Indies in general; Bermudas; frequent in Europe; North China? (SWINH. Ibis, 1863, 97.)

SP. CHAR. *Adult in summer:* Above, light clay-color, the crown, back, scapulars, and tertials washed with light rufous or rusty orchraceous; the feathers black centrally, producing conspicuous streaks, which widen into spots on the scapulars and back; rump and middle upper tail-coverts brownish black; lateral upper tail-coverts white, with dusky shaft-streaks. Middle tail-feathers dusky, edged with lighter; other rectrices pale brownish gray, bordered with white. Wing-coverts light grayish brown, with paler borders and darker centres; a light superciliary stripe, and a darker loral one. Cheeks, sides of the neck, whole jugulum, and breast, pale clay-color or light grayish buff, streaked with dusky; sides sparsely streaked. Remaining lower parts immaculate white. "Basal half of bill dull greenish yellow." (NELSON, MS.) *Adult in winter:* Similar to summer plumage, but the rusty tint above almost or wholly absent, and the black markings less sharply defined. *Young, first plumage:* Quite similar to the summer adult, but the scapulars and outer interscapulars conspicuously tipped externally with white, the breast, etc., more distinctly buff, and rather more narrowly streaked.

Total length, about 9.00 inches; wing, about 5.00; culmen, 1.10; tarsus, 1.00–1.10; middle toe, .90.

This well-known Sandpiper is one of the most abundant species of its family during its migrations. In the northeastern portion of the State, it is, says Mr. Nelson, a very abundant migrant, "sometimes uniting into large flocks containing several hundred, and frequenting wet prairies or marshes. At other times it can only be found singly, scattered over the same territory. March 25th to May 10th, and the middle of September to the first of November. A few remain through the summer, but whether they breed or not I have been unable to decide."

Tringa fuscicollis Vieill.

BONAPARTE'S SANDPIPER.

Popular synonym. White-tail Stile (Plymouth Bay, Mass.).

Tringa fusciollis VIEILL. Nouv. Dict. xxxiv, 1819, 461.—COUES, B. N. W. 1874, 487.—A. O. U. Check List, 1886, No. 240.—RIDGW. Man. N. Am. B. 1887, 157.

Actodromas fuscicollis RIDGW. Nom. N. Am. B. 1882, No. 536.—B. B. & R. Water B. N. Am. i, 1884, 227.

Tringa schinzii BONAP. Synop. 1828, 249; Am. Orn. iv, 1833, 69, pl. 24, fig. 2.—NUTT. Man. ii, 1834, 109.—SW. & RICH. F. B.-A. ii, 1831, 384.—AUD. Orn. Biog. iii, 1833, 529, pl. 278; Synop. 1839, 236; B. Am. v, 1842, 275, pl. 335.

Tringa bonapartei SCHLEG. Rev. Crit. Ois. Eur. 1844, 89.—CASS. in Baird's B. N. Am. 1858, 722 (part).—BAIRD, Cat. N. Am. B. 1859, No. 533.—COUES, Key, 1872, 255; Check List, 1874, No. 421.

Actodromas bonapartei COUES, Check List, 2d ed. 1882, No. 617.

HAB. Eastern Province of North America, breeding far northward; in winter, the whole of Middle America, South America, and the West Indies; Falkland Islands; occasional in Europe.

SP. CHAR. *Adult in summer:* Above, light brownish gray, much tinged, particularly on the crown, back, and inner scapulars, with light rusty buff or ochraceous, all the feathers black centrally, these markings largest and somewhat V-shaped, or sagittate, on the

scapulars, streak-like elsewhere, the streaks broadest on the crown and back; rump dusky blackish, the feathers bordered with light gray; upper tail-coverts pure white, in marked contrast, some of the feathers having irregular sagittate, mostly concealed, spots of dusky. Tail brownish gray, the middle feathers blackish, and all slightly edged with whitish. Wing-coverts and tertials brownish gray, lighter on edges and dusky centrally, the shafts nearly black. Superciliary stripe and entire lower parts pure white; auriculars light buff, indistinctly streaked; sides of head and neck, foreneck, jugulum, and upper part of breast, streaked or dashed with dusky; sides and flanks with larger irregular markings of the same. *Adult in winter:* Wings, rump, upper tail-coverts, and tail as in summer plumage; rest of upper parts continuous brownish gray, relieved by rather indistinct mesial streaks of black; streaks on jugulum, etc., less sharply defined than in the summer plumage. *Young, first plumage:* Back and scapulars black, the feathers bordered terminally with pure white, and laterally with ferruginous, those of the middle of the back also tipped with this color; feathers of the pileum and rump, as well as the tertials, also bordered with rusty; wing-coverts bordered with pale grayish buff. Otherwise as in the winter plumage, but breast, jugulum, etc., suffused with pale fulvous.

Total length, about 7 inches; wing, 4.90; culmen, .90–1.00; middle toe, .70–.75.

Specimens from South America are exactly like northern ones, among which there is the usual amount of individual variation. In midsummer the black of the back and scapulars increases in relative extent, partly by the wearing away of the rusty borders to the feathers, until, in some examples, the dorsal aspect is chiefly black.

The habits of this species are, so far as known, so much like those of the Pectoral Sandpiper that we shall not enter into detail concerning them. It is comparatively a rare species in Illinois, Mr. Nelson referring to it as follows: "Rather uncommon migrant. Dr. Hoy writes 'that it was formerly abundant during the migrations, but is now rare,' (at Racine). June 9th, 1876, I obtained one specimen and saw quite a number of others upon the Lake shore near Waukegan. Mr. R. P. Clarke informs me that he has taken it late in autumn upon the Lake shore near Chicago."

Tringa bairdii (Coues).

BAIRD'S SANDPIPER.

Actodromas bairdii Coues, Proc. Acad. Nat. Sci. Phila. 1861, 194; Check List, 2d ed. 1882, No. 615.—Ridgw. Nom. Am. B. 1881, No. 537.—B. B. & R. Water B. N. Am. i, 1884, 230.

Tringa bairdii Scl. P. Z. S. 1867, 332 (Chili).—Coues, Key, 1872, 255; Check List, 1874, No. 419; Birds N. W. 1874, 484.—A. O. U. Check List, 1886, No. 241.—Ridgw. Man. N. Am. B. 1887, 157.

Hab. America in general, but chiefly the interior of the northern and western portion of the southern continent; ranging from Alaska to Chili and Argentine Republic; rare in the Eastern Province, and not yet recorded from the Pacific coast of the United States; accidental in southern Africa.

SP. CHAR. *Adult in summer:* Above, variegated with black and grayish buff, the former prevailing, in the form of irregular, somewhat diamond-shaped spots on the back and scapulars, the buff occupying most of the border of the feathers, and sending indentations toward the shaft; elsewhere, the black forms distinct streaks, widest on the crown and anterior part of the back; rump and upper tail-coverts dusky brownish black, feathers bordered with dull clay-color, the anterior ones of the latter chiefly white, with irregular U-shaped markings of dusky. Tail light brownish gray, the middle feather nearly black, all narrowly edged with whitish. Wing-coverts and tertials grayish brown, with lighter edges and darker centres; remiges dull slate. Lower parts white, the sides of the head and neck, the jugulum, and anterior portion of the sides, streaked with dusky. *Adult in winter:* Above, continuous grayish clay-color, the feathers with darker mesial streaks: rump and middle upper tail-coverts dusky, the feathers bordered terminally with dull clay-color; lateral upper tail-coverts brownish white. Beneath, brownish white, the jugulum, breast, sides (anteriorly), and sides of the neck, deeply suffused with clay-color or buff. *Young, first plumage:* Above, grayish clay-color, the scapulars and interscapulars blackish centrally, and conspicuously bordered with whitish terminally; the feathers of the crown and nape streaked with dusky. Wing-coverts, rump, etc., much as in the winter plumage; sides of the head and neck, the jugulum, and breast, pale clay-color, rather indistinctly streaked with dusky. Other lower parts white.

Total length, about 7.00 to 7.50 inches; extent, about 15.00; wing, about 4.75; culmen, usually less than 1.00 inch; tarsus, nearly 1.00; middle toe, about .70. Bill black; iris dark brown; legs and feet slate-black.

This species, like Bonaparte's Sandpiper, is one of the less abundant of the Limicolæ in Illinois. Mr. Nelson says that it is "a rather uncommon migrant during the middle of May, and the last of August and first of September. It is generally found in small parties or singly, with other species of Sandpipers, but it sometimes occurs in large flocks."

Tringa minutilla Vieill.

LEAST SANDPIPER.

Popular synonyms. Peep; Ox-eye; Bumble-bee; Wilson's Sandpiper.

Tringa minutilla VIEILL. Nouv. Dict. xxxiv, 1819, 452.—COUES, Key, 1872, 254; Check List, 1874, No. 418; B. N. W. 1874, 482.—A. O. U. Check List, 1886, No. 242.—RIDGW. Man. N. Am. B. 1887, 158.

Actodromas minutilla BONAP. 1856.—RIDGW. Nom. N. Am, B. 1881, No. 538.—COUES, Check List, 2d ed. 1882, No. 614.—B. B. & R. Water B. N. Am. i, 1884, 236.

Tringa pusilla WILS. Am. Orn. v, 1813, 32, pl. 37, f. 4 (*nec* LINN.).—SW. & RICH. F. B.-A. ii, 1831, 386.—AUD. Orn. Biog. iv, 1838, 180, pl. 320; Synop. 1839, 237; B. Am. v, 1842, 280, pl. 337.

Tringa wilsonii NUTT. Man. ii, 1834, 121.—CASS. in Baird's B. N. Am. 1858, 721.—BAIRD, Cat. N. Am. B. 1859, No. 532.

HAB. The whole of America, but breeding (so far as known) only north of the United States; accidental in Europe.

SP. CHAR. *Adult, summer plumage:* Back and scapulars black, the feathers bordered and somewhat barred (not continuously, and mostly beneath the surface) with rusty ochraceous, the tips of some of the feathers often whitish; rump and middle upper tail-coverts brownish black; lateral upper tail-coverts white, with wedge-shaped markings of grayish; middle tail-feathers dusky, with paler edges; other rectrices light brownish gray, with

white shafts. Crown light grayish fulvous or ochraceous, heavily streaked with black; wing-coverts brownish gray, with darker centres and paler edges, the shafts blackish; tertials edged with ochraceous; primaries dusky. A light superciliary stripe, and a darker one on side of the head; neck and jugulum very pale grayish fulvous or fulvous-ashy streaked with dusky; sides and crissum narrowly streaked; other lower parts immaculate white. *Adult in winter:* Above, rather dark brownish-gray, the feathers with indistinctly darker centers; rump, etc., as in summer plumage. Superciliary stripe and lower parts white, the jugulum light ashy, indistinctly streaked. *Young, first plumage:* Very similar to the summer plumage of the adult, but many of the scapulars and interscapulars tipped with white, these feathers without any bars; wing-coverts bordered with ochraceous. Jugulum suffused with pale fulvous, and indistinctly streaked.*

Total length, about 5.50 to 6.50 inches; extont 11 to 11.50; wing, about 3.50 to nearly 4; culmen, about .75 to .92; tarsus, .75; middle toe, .60. Bill dull black; iris dark brown; legs and toes dusky.

This abundant and extensively diffused little species resembles very closely, both in its small size and in its colors, at all seasons, the equally common and widely distributed Semipalmated Sandpiper (*Ereunetes pusillus*). It may be immediately distinguished, however, by the completely cleft toes, the other species having all the anterior toes webbed at the base.

Little need be said about the habits of so common a bird as the present species, especially since it so much resembles its congeners in this respect. Mr. Nelson refers to its occurrence in Cook county as follows:

"Common migrant. Not so numerous as the preceding [*Ereunetes pusillus*]. Arrives the 1st of May and remains until the last of the month; returns with the preceding. The 5th of June, 1875, I found one of these birds building its nest near the Calumet River. When first observed it was busily at work in the midst of a small bunch of grass, but upon my approach it ran a few feet to one side and watched my movements. The nest was nearly finished, and was a shallow depression in the center of the tuft of grass, formed by the bird, which had just commenced lining it with small straws. Unfortunately work was not resumed upon the nest after my visit, but the birds were noticed several times in the vicinity, and they probably had a nest in some safer spot. Several Least Sandpipers were observed near Waukegan, the first of July, 1875, by Mr. Rice, who is certain they had nested in the vicinity."

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*Some young specimens in the collection, apparently of the same age and almost certainly the same species, differ very strikingly from the above description in the less amount or total absence of rufous above, the feathers having merely narrow ochraceous borders, and scarcely any white on the ends of the feathers; the whole plumage being thus very much duller.

Subgenus **Pelidna** Cuvier.

Pelidna Cuv. Règ. Anim. 1817, 490; ed. 2, 1829, 526. Type, *Tringa alpina* Linn.

Char. Bill slender, longer than the head, deep through the base, compressed, scarcely or not at all expanded at the tip, and decidedly decurved terminally. Tarsus shorter than the bill, longer than the middle toe. Wings reaching beyond end of tail.

The subgenus *Pelidna* includes two well-known Sandpipers, both of which are common to North America and Europe, although one of them, the Curlew Sandpiper, *P. ferruginea*, can scarcely be considered as more than a straggler here. The other is represented in the two continents by distinguishable races. The characters of the species and races of *Pelidna* are as follows:

1. **T. alpina.** Upper tail-coverts dusky. *Adult in summer:* Belly black, other lower parts whitish. *Winter plumage:* No black beneath; above, uniform brownish gray. *Young:* Belly and breast spotted with black.

   α. alpina. Wing, 4.30–4.75; culmen, 1.15–1.40; tarsus, .85–1.00; middle toe, .70–.75. *Hab.* Europe, etc.

   β. pacifica. Wing, 4.60–4.95; culmen, 1.40–1.75; tarsus, 1.00–1.15; middle toe, .70–.75. *Hab.* North America and Eastern Asia.

2. **T. ferruginea.** Upper tail-coverts white. *Adult in summer:* Beneath, including belly, deep cinnamon-rufous. *Winter plumage:* Beneath, white, indistinctly streaked on the jugulum; above, brownish gray. *Young:* Belly and breast unspotted. *Hab.* Palæarctic Region; occasional in northern and eastern North America.

Tringa alpina pacifica (Coues).

RED-BACKED SANDPIPER.

Popular synonyms. Stile (Plymouth Bay, Mass.); American Dunlin.

Tringa alpina Wils. Am. Orn. vii, 1813, 25, pl. 56, fig. 2 (*nec* Linn.).—Sw. & Rich. F. B.-A. ii, 1831, 383.—Nutt. Man. ii, 1834, 106.—Aud. Orn. Biog. iii, 1835, 580, pl. 290. Synop. 1839, 234; B. Am. v, 1842, 266.

Tringa cinclus Wils. Am. Orn. vii, 1813, 39, pl. 57, fig. 3 (*nec* Linn.).

Tringa alpina var. *americana* Cass. in Baird's B. N. Am. 1858, 719.—Baird, Cat. N. Am. B, 1859, No. 530.—Coues, Key, 1872, 256; Check List, 1874, 424; Birds N. W. 1874, 489.

Pelidna alpina americana Ridgw. Proc. U. S. Nat. Mus. 1881, 200; Nom. N. Am. B. 1881, No. 539*a*.—Coues, Check List, 2d ed. 1882, No. 624.

Pelidna pacifica Coues, Proc. Acad. Nat. Sci. Phila. 1861, 189 (in text).

Tringa alpina pacifica Ridgw. in A. O. U. Check List, 1886, No. 243*a*; Man. N. Am. B. 1887, 160.

Pelidna alpina, β. pacifica B. B. & R. Water B. N. Am. i, 1884, 242.

Hab. North America in general; breeding far northward; eastern Asia.

Sp. Char. *Adult in summer:* Crown, back, scapulars, rump, and upper tail-coverts, light rufous, the crown streaked, other parts spotted with black; wing-coverts brownish gray, the greater broadly tipped with white. Head (except crown), neck, jugulum, and breast, grayish white, streaked with dusky; abdomen black; sides, flanks, anal region, crissum, and lining of the wing, pure white, the sides, flanks, and crissum sparsely streaked. *Adult and young in winter:* Above, entirely plain ash-gray, sometimes with very indistinct dusky shaft-streaks; indistinct superciliary stripe and lower parts white,

the neck and jugulum indistinctly streaked with grayish, the sides, flanks, and crissum sometimes sparsely streaked. *Young:* Back and scapulars black, the feathers broadly bordered with rusty ochraceous, this becoming paler, or even white, on the ends of some of the feathers; lesser and middle-wing coverts bordered with buff; rump plain brownish slate; upper tail-coverts darker, tipped with rusty; crown light rusty, streaked with black. Head and neck (except crown and throat) dull dingy buff indistinctly streaked with dusky; remaining lower parts, including throat, white, the breast and belly with numerous irregularly cordate spots of black, the flanks, crissum, and lining of the wing immaculate. "Bill and feet black; iris dark brown." (AUDUBON.)

Total length about 8.50 inches; wing, 4.60–4.95; culmen, 1.40–1.75 tarsus, 1.00–1.15: middle toe, .70–.80.

There is a considerable amount of individual variation in this species, especially noticeable in the extent and continuity of the black abdominal area, the distinctness of the black markings above, and the depth of the rufous tint; not unfrequently the latter is mixed with grayish. In the winter plumage some examples have the sides and crissum narrowly streaked, while in others these parts are immaculate.

The Red-backed Sandpiper is an abundant species during the spring and fall migrations. Mr. Nelson records it as "a very abundant migrant" in Cook county, and says that it "arrives in full breeding plumage the last of May, and is found about muddy pools and flats near the Lake until the 5th of June. Returning in winter dress during September it remains well into October. At this season it is generally found in small parties, while in spring the flocks often contain hundreds of individuals."

GENUS **EREUNETES** ILLIGER.

Ereunetes ILLIGER, Prodromus, 1811, 262. Type, *E. petrificatus* ILLIG.,=*Tringa pusilla* LINN.

CHAR. Size small; anterior toes webbed at the base; a well-developed hind toe. Bill about as long as or a little longer than the head, straight, somewhat expanded at the end, about as long as the tarsus; middle toe more than half as long as the tarsus; bare portion of tibia nearly equal to the middle toe.

The bill of *Ereunetes* is quite stout and considerably expanded, by which it is really distinguished from *Tringa minutilla* independently of the semipalmated feet. The tarsus and middle toe are about equal; the tibia denuded anteriorly for about two thirds the length of tarsus. The basal membrane of toes is more scalloped out interiorly than exteriorly; the notch externally not quite as deep as to the first joint, although the

membrane extends beyond the second. There is a tendency to hexagonal subdivision in the bare portion of tibiæ anteriorly. The tail is doubly emarginate.

Two species are known, the common Semipalmated Sandpiper or "Peep," and a northwestern relative.

Ereunetes pusillus (Linn.)

SEMIPALMATED SANDPIPER.

Popular synonyms. Peep; Ox-eye; Bumble-bee.

Tringa pusilla Linn. S. N. ed. 12, i, 1766, 252.

Ereunetes pusillus Cass. Proc. Acad. Nat. Sci. Phila. xiii, 1860, 195.—Coues, Key, 1872, 254; Check List, 1874, No. 417; 2d ed. 1880, No. 612; Birds N. W. 1874, 481 (part).—Ridgw. Nom. N. Am. B. 1881, No. 541; Man. N. Am. B. 1887, 161.—A. O. U. Check List, 1886. No. 246.

Ereunetes pusillus, a, pusillus B. B. & R. Water B. N. Am. i, 1884, 205.

Ereunetes petrificatus Illig. Prodr. 1811, 262 (Bahia).—Cass. in Baird's B. N. Am. 1858, 724 (part).—Baird, Cat. N. Am. B. 1859, No. 535.

Tringa semipalmata Wils. Am. Orn. vii, 1813, 131, pl. 63, fig. 3.—Sw. & Rich. F. B.-A. ii, 1831, 381.—Aud. Orn. Biog. v, 1839, 111, pl. 408; Synop. 1839, 236; B. Am. v, 1842, 277, pl. 336.

Tringa (Heteropoda) semipalmata Nutt. Man. ii, 1834, 136.

Hab. The whole of North and Middle, and a considerable portion of South America; throughout the West Indies, Bermuda; south to Colombia and Brazil; breeding chiefly, if not exclusively, north of the United States.

Sp. Char. *Adult, breeding plumage:* Upper surface light grayish brown, the sides of the pileum and edges of some of the scapulars and interscapulars tinged with pale buffy cinnamon, but this sometimes almost wholly absent; pileum heavily streaked, and dorsal region heavily spotted with black, the latter color occupying the central portion of each feather. A streaked white superciliary stripe, and dusky loral space, the latter usually very distinctly defined along its upper edge, the lower part broken into streaks, which extend backward across the cheeks; auriculars streaked grayish brown. Lower parts pure white, the jugulum and breast tinged with ashy and streaked with dusky. *Winter plumage:* Above brownish gray, relieved by dusky shaft-streaks; superciliary stripe and lower parts pure white, the jugulum faintly streaked. *Young:* Similar to the summer adult, but jugulum tinged with pale grayish buff, and without well-defined streaks or spots, the scapulars and interscapulars bordered terminally with white, and the brown usually less rusty. *Downy young:* Forehead dingy white, divided by a mesial line of black; crown light chestnut, marbled posteriorly with black and white; occiput mottled whitish. A distinct loral line of black, forking just before the eye, the upper branch running toward the anterior corner of the eye, the other inclining downward. Throat fulvous-white; other lower parts whitish, nearly pure on the abdomen. Upper parts pale fulvous-brown laterally, black centrally, the whole surface thickly bespangled with fine white tufts, terminating the down-filaments.

Wing, 3.50–4.00 (3.88); culmen, .68–.92 (.77); tarsus, .80–.95 (.86); middle toe, .55–.65 (.61). [Eighteen summer adults measured.]

This is perhaps the most abundant of the Sandpipers during the migrations, when several hundred may sometimes be seen in a single flock. Its habits are so much like those of other species that no special description is required.

Ereunetes occidentalis Lawr.

WESTERN SANDPIPER.

Ereunetes occidentalis LAWR. Proc. Phila. Acad. 1864, 107.—A. O. U. Check List, 1886, No. 247.—RIDGW. Man. N. Am. B. 1887, 162.

Ereunetes pusillus var. *occidentalis* COUES, Check List, 1874, No. 417 *a*.

Ereunetes pusillus occidentalis RIDGW. Nom. N. Am. B. 1881, No. 541 *a*.—COUES, Check List, 2d ed. 1882, No. 713.

Ereunetes pusillus, b, occidentalis B. B. & R. Water B. N. Am. 1, 1884, 205.

Ereunetes pusillus
Ereunetes petrificatus } AUCT. (citations of western localities).

HAB. North America in general, except portion east of the Rocky Mountains north of the United States boundary. Breeding along western coast of Alaska (Bering's Sea, Norton Sound, etc.), and thence southward for an undetermined distance; migrating chiefly through the Western Province, but frequently straying to the Atlantic coast of the U. S. (Massachusetts, Virginia, Georgia, etc.); Curaçoa, Venezuela, and some of the West Indies in winter.

SP. CHAR. *Adult, breeding plumage:* Upper surface bright rusty cinnamon, the feathers spotted centrally with black, the cinnamon sometimes nearly uniform along the sides of the crown; a white superciliary stripe streaked with dusky grayish, this bordered below by a stripe of light rufous or rusty on the side of the head, from the bill across the lores, and beneath the eyes across the auriculars; remainder of the head white, streaked, except on the throat (where also sometimes finely flecked) with grayish dusky. Lower parts pure white, the jugulum and breast thickly marked with broad streaks of dusky, these broadest and of triangular form on the sides of the breast; sides marked with sagittate dusky spots. *Adult, winter plumage:* Not distinguishable from *E. pusillus* in the same stage, except by greater average length of bill and tarsus. *Young:* Similar to young of *pusillus*, but with rusty ochraceous prevailing on the dorsal region and pileum. *Downy young:* Similar to the same stage of *E. pusillus*, but the rusty areas of the upper parts more extended and more castaneous.

Wing, 3.60–3.90 (3.74); culmen, .85–1.15 (.95); tarsus .85.–95 (.89); middle toe, .55–.65 (.60). [Eighteen summer adults measured.]

This western species is not uncommon during the migrations, usually mixed in with flocks of the *E. pusillus*, but sometimes in small companies by itself.

GENUS CALIDRIS CUVIER.

Calidris CUVIER, Anat. Comp. 1, 1799–1800, tabl. ii. Type, *Tringa arenaria* LINN.

CHAR. General characters of *Tringa*, but hind toe entirely absent. Bill straight, rather longer than the head, slightly expanded or spoon-shaped at end. Toes short, the middle one scarcely two thirds the tarsus.

Calidris arenaria (Linn.)

SANDERLING.

Popular synonyms. Skinner (Plymouth Bay, Mass.); White Snipe.

Tringa arenaria LINN. S. N. ed. 12, i, 1766, 251.—AUD. Orn. Biog. iii, 1835, 231; Synop. 1839, 287; B. Am. v, 1842, 287, pl. 338.

Calidris arenaria LEACH, Syst. Cat. Brit. Mam. & B. 1816, 28.—SW. & RICH. F. B.-A, ii, 1831, 366.—NUTT. Man. ii, 1834, 4.—CASS. in Baird's B. N. Am. 1858, 723.—BAIRD, Cat. N. Am. B. 1859. No. 534.—COUES, Key, 1872, 257, fig. 167; Check List, 1874, No. 427; 2d ed. 1882, No. 627; Birds N. W. 1874, 492.—RIDGW. Nom. N. Am. B. 1881, No. 542; Man. N. Am. B. 1887, 162.—B. B. & R. Water B. N. Am. i, 1884, 249.—A. O. U. Check List, 1886, No. 248.

Charadrius calidris LINN. S. N. ed. 12, i, 1766, 255.—WILS. Am. Orn. vii, 1813, 68, pl. 59, fig 4.

Charadrius rubidus GMEL. S. N. ed. 13, i, 1788, 688.—WILS. Am. Orn. vii, 1813, 129, pl. 58, fig. 3.

HAB. Nearly cosmopolitan, but breeding only in the Arctic and Subarctic districts; in America migrating south to Patagonia and Chili. Chiefly littoral, but frequenting also the larger inland waters.

"SP. CHAR. No hind toe; front toes moderate or rather long, flattened underneath, distinctly margined with a membrane. Bill rather longer than the head, straight, rather thick; edge of upper mandible flattened; nasal groove deep and nearly as long as the upper mandible, not so distinct in the lower; both mandibles widened and flattened at the tip; aperture of the nostril large and covered with a membrane. Wing long; tail short, with the middle feathers longest; under coverts long as the tail; legs moderate; lower third of the tibia naked. Lower parts white, immaculate on the belly, sides, flanks, axillars, anal region, and crissum; greater wing-coverts broadly tipped with white, and inner primaries white at base of outer webs. *Adult in summer:* Above, light rufous, broken by large spots of black, the feathers mostly tipped with whitish. Head, neck, throat, and jugulum, pale cinnamon-rufous, speckled below and streaked above with blackish. *Adult in winter:* Above very pale pearl-gray (the lesser wing-coverts darker anteriorly), relieved only by faint darker shaft-streaks of the feathers. Throat and jugulum immaculate pure white. *Adult in spring:* Above, light grayish, with large black spots (streaks on the crown), here and there mixed with rufous; jugulum speckled with dusky on a white ground. *Young:* Above pale gray, spotted with black and whitish, the latter on tips of the feathers; jugulum immaculate white, faintly tinged with dull buff. "Bill and feet black; iris brown." (AUDUBON.)

"Total length, about 7.75–8.00 inches; wing, 4.70–5.00; culmen, .95–1.00; tarsus, .90–1.05; middle toe, .55–.60. (*Water B. N. Am.*)

The Sanderling is not uncommon in Illinois during the migrating seasons, but is chiefly confined to the shores of the larger bodies of water. Near Chicago, Mr. Nelson says that it is an "abundant migrant along the Lake shore," and adds the following: "Arrives in full breeding plumage—which varies greatly with individuals—about the 20th of May, and is found in flocks, numbering from five to seventy-five, along the shore, until June 10th. Returns the first of August, still wearing its breeding dress, which is changed the last of the month for the duller garb of winter. Departs for the south by the 20th of October. This species, with *Æ. meloda*, is found almost exclusively along the bare sandy beach, where it would seem an impossibility for it to obtain a living."

GENUS **LIMOSA** BRISSON.

Limosa BRISSON, Orn. v, 1760, 261. Type, *Scolopax limosa* LINN.

CHAR. Bill lengthened, exceeding the tarsus, slender, and curving gently upwards, grooved to near the tip, the latter not attenuated. Tarsus with transverse scutellæ before and behind, reticulated laterally. A short basal membrane between the middle and outer toes. Bill much longer than head, nearly equaling tarsi and toes together, curving gently upwards from the base, where it is elevated and compressed, depressed, however, at the end. The grooves on sides of bill and beneath extend nearly to the tip; the tip of the upper mandible is thickened, and extends a little below the lower. The gape is slight, not exceeding beyond the base of culmen; the feathers on the side of the bill reach forward to about the same point, those on the chin a little farther. Tarsus more than one and one half times the toes, twice the bare part of tibiæ; hind toe lengthened; outer toe webbed as far as end of first joint, inner toe with only a short basal web. Tail short, even, two fifths the wings.

In some respects the bill of this genus resembles that of *Macrorhamphus*, the chief apparent difference being the upward curve of the one and its straightness in the other.

But two species are known to occur in Illinois. Two others are included in the North American fauna, one, *L. limosa* (Linn.)—the Black-tailed Godwit—by reason of its accidental occurrence in Greenland, the other, *L. lapponica baueri* (Naum.)—the Pacific Godwit—occurring abundantly on the coasts and islands of Alaska. Since the occurrence of either of these species in Illinois is very unlikely, it is not thought worth while to include them in the following synopsis:

1. **L. fedoa.** Tail narrowly barred; axillars and lining of wing ochraceous. Prevailing color ochraceous, the head and neck streaked, the remaining upper parts barred with brownish dusky; axillars and lining of the wing deep cinnamon-ochre. Wing, 8.50–9.00; culmen, 3.50–5.00; tarsus, 2.75–3.00; middle-toe, 1.40.
2. **L. hæmastica.** Tail black, with white base and tip; axillars uniform smoky blackish. Upper tail-coverts crossed by a wide band of pure white; longer upper tail-coverts, entire rump, and axillars, uniform dusky; lining of wing dusky, spotted with white outwardly. *Summer plumage:* Beneath, chestnut barred with dusky; above, mottled blackish. *Winter plumage:* Beneath, whitish, without markings, the breast and jugulum grayish; above, uniform brownish gray, except rump, upper tail-coverts, and tail. *Young:* Beneath, light grayish clay-color, darker on breast; above, brownish gray, feathers bordered with ochraceous, and somewhat spotted with dusky. Wing, 8.10–8.60; culmen, 2.85–3.45; tarsus, 2.25–2.50; middle-toe, 1.15–1.30.

Limosa fedoa (Linn.)

MARBLED GODWIT.

Popular synonyms. Marlin; Straight-billed Curlew.

Scolopax fedoa Linn. S. N. i, ed. 10, i, 1758, 146; ed. 12, 1766, 244.—Wils. Am. Orn. vii, 1813, 30, pl. 56, f. 4.

Limosa fedoa Ord, ed. Wilson, vii, 1824, 30.—Sw. & Rich. F. B.-A. ii, 1831, 335.—Nutt. ii, 1834, 173.—Aud. Orn. Biog. iii, 1835, 287; v, 590, pl. 238; Synop. 1839, 246; B. Am. v, 1842, 331, pl. 348.—Cass. in Baird's B. N. Am. 1858, 740.—Baird, Cat N. Am. B. 1859, No. 547.—Coues, Key, 1872, 257; Check List, 1874, No. 528; Birds N. W. 1874, 492.—B. B. & R. Water B. N. Am. i, 1884, 255.—A. O. U. Check List, 1886, No. 249.—Ridgw. Man. N. Am. B. 1887, 163.

Limosa fœda Ridgw. Nom N. Am. B. 1881, No. 543.—Coues, Check List, 2d ed. 1882, No. 628.

Hab. North America; breeding in the interior of the continent (Missouri region and northward), wintering southward to Yucatan and Guatemala; Cuba.

Sp. Char. Bill long, curved upwards; both mandibles grooved; wings long; tail short; legs long; tibia with its lower half naked; toes rather short, margined and flattened underneath; the outer and middle toes united by a large membrane. Entire upper parts variegated with brownish black and pale reddish, the former disposed in irregular and confluent bands, and the latter in spots and imperfect bands; in many specimens the black color predominating on the back, and the pale reddish on the rump and upper tail-coverts. Under parts pale cinnamon, with transverse lines of brownish black on the breast and sides; under wing-coverts and axillaries darker cinnamon; outer webs of primaries dark brown, inner webs light cinnamon; secondaries light cinnamon; tail light blackish brown; iris brown; feet bluish gray. (Audubon.)

Total length about 18.00 inches; wing, 9.00; tail, 4.00–5.00; tarsus, 3.00 inches. *

The plumage of this bird is in some stages wonderfully similar to that of *Numenius longirostris;* in fact the resemblance is so great that were it not for the conspicuous generic difference it would be rather difficult to distinguish them specifically. Both have precisely the same tints of color, and also a nearly identical distribution of the markings. The main differences appear to be the following: In *Numenius* the black bars of the upper parts are connected by broad stripes along the middle of the feathers, while in *Limosa* these bars are all isolated and narrower, as well as of a less deep black. The longitudinal streaks on the head and neck are much less conspicuous in *Limosa;* in the latter there is also oftener a tendency to transverse bars on the crissum, and less often to streaks on the foreneck.

This fine bird is a rather common migrant in Illinois, known to sportsmen by the names of Marlin, Godwit, and Straight-billed Curlew. We have nothing special to offer concerning its habits.

* A series of ten specimens, including an equal number of males and females, shot by Mr. Franklin Benner, in Minnesota, between June 5th and 10th, was carefully measured, with the following results: *Males.* Total length, 16.50–17.62, average, 17.00; extent, 30.50–31.50, average, 31.10; bill, 3.66–4.00, average, 3.84. *Females.* Total length, 18.12–19.62, average, 19.10; extent, 32.00–33.87, average, 32.82; bill, 4.54–5.06, average, 4.77. (See "*Bull. Nutt. Orn. Club,*" v, Jan. 1880, p. 18.)

Limosa hæmastica (Linn.)

HUDSONIAN GODWIT.

Scolopax hæmastica Linn. S. N. ed. 10, i, 1758, 147.

Limosa hæmastica Coues, B. N. W. 1874, 760; Bull. Nutt. Orn. Club, 1880, 100; Check List, ed. 2, 1882, No. 629.—Ridgw. Nom. N. Am. B. 1881, No. 545; Man. N. Am. B. 1887, 164.—B. B. & R. Water B. N. Am. i, 1884, 260.—A. O. U. Check List, 1886, No. 251.

Scolopax hudsonica Lath. Ind. Orn. ii, 1790, 720.

Limosa hudsonica Sw. & Rich. F. B.-A. ii, 1831, 396.—Nutt. Man. ii, 1834, 175.—Aud. Orn. Biog. iii, 1835, 426; v, 592, pl. 258; Synop. 1839, 247; B. Am. v, 1842, 335, pl. 349.—Cass. in Baird's B. N. Am. 1858, 741.—Baird, Cat. N. Am. B. 1859, No. 548.—Coues, Key, 1872, 258; Check List, 1874, No. 429; Birds N. W. 1874, 494.

Hab. Eastern North America and the whole of Middle and South America. No West Indian localities recorded except Cuba. Breeds only northward.

Sp. Char. Smaller than *L. fedoa*. *Summer adult:* Above, blackish brown, irregularly spotted and barred with pale ochraceous, the rump plain brownish black; upper tail-coverts immaculate white; wing-coverts and shorter quills plain dark brownish gray; primaries brownish black, their shafts white. Lower parts chestnut-rufous, narrowly barred with brownish black, the feathers of the belly, etc., often tipped with white. Tail black, with the base and tip (narrowly) white. Lining of wings and axillars plain smoky black. *Winter plumage:* Above, plain dull brownish gray; beneath, white, the breast shaded with brownish gray. Other characters as in summer dress. *Young:* Somewhat like the winter plumage, but each feather of dorsal region marked with a subterminal dusky crescent and a narrower terminal one of dull ochraceous; beneath very pale drab, or dull light buff, the abdomen whitish, and the jugulum more grayish. "Bill grayish yellow, dark brown along the ridge of the upper mandible, and blackish towards the tips of both; iris brown; feet light grayish blue." (Audubon.)

This species resembles somewhat the European *L. limosa*, having the tail marked much the same as in that species. The latter, however, has two white patches on the wing (which in the present bird has no white at all, except the shafts of the primaries), and the axillars pure white instead of brownish black. There are also other differences of coloration, while the proportions are quite different, *L. limosa* having the bill and legs much longer.

South American specimens are quite identical with northern ones.

This species is an abundant migrant in our State, making its appearance both in April and October. Like the Marbled Godwit it is fine eating, and on account of its size is, like that species, much sought by gunners.

GENUS **TOTANUS** BECHSTEIN.

SUBGENUS **Totanus.**

Totanus BECHST. Orn. Taschenb. 1803, 282. Type, *Scolopax totanus* LINN.

CHAR. Bill usually slender, and slightly upturned terminally, the lateral groove of the maxilla extending about half way to the tip. No web between the middle and inner toes. Tarsus about twice as long as the middle toe.

The subgenus *Totanus* is very closely allied to *Helodromas* (see page 62), but differs as follows:

Totanus. Middle toe not more than half as long as the tarsus; bill decidedly shorter than tarsus.

Helodromas. Middle toe nearly or quite as long as the tarsus; bill longer than tarsus.

The two North American species of *Totanus*, while resembling each other minutely in coloration, are very different in size and proportions, as the following comparative measurements will show:

1. **T. melanoleucus.** Size large—wing more than 7 inches. Terminal half of bill slightly recurved. Wing, 7.40–8.00; culmen, 2.05–2.40; tarsus, 2.35–2.70; middle toe, 1.25–1.50.
2. **T. flavipes.** Size small—wing less than 7 inches. Terminal half of bill not perceptibly recurved. Wing, 6.10–6.65; culmen, 1.30–1.55; tarsus, 2.00–2.15; middle toe, 1.00–1.15.

Totanus melanoleucus (Gmel.)

GREATER YELLOW-LEGS.

Popular synonyms. Big Yellow-legs; Stone Snipe; Tell-tale; Big Cucu (Plymouth Bay, Mass.); Yelper.

Scolopax melanoleuca GMEL. S. N. ed. 13, i, 1788, 659.
Totanus melanoleucus VIEILL. Nouv. Dict. vi, 1816, 398.—AUD. Orn. Biog. iv, 1838, 68, pl. 308.—COUES, Key, 1872, 268; Check List, 1874, No. 432; 2d ed. 1882, No. 633; B. N. W. 1874, 496.—RIDGW. Nom. N. Am. B. 1881, No. 548; Man. N. Am. B. 1887, 165.—B. B. & R. Water B. N. Am. i, 1884, 269.—A. O. U. Check List, 1886, No. 254.
Gambetta melanoleuca BONAP. 1856.—CASS. in Baird's B. N. Am. 1858, 731.—BAIRD, Cat. N. Am. B. No. 539.
Scolopax vociferus WILS. Am. Orn. vii, 1813, 57, pl. 58, fig. 5.
Totanus vociferus VIEILL. 1816.—SW. & RICH. F. B.-A. ii, 1831, 389.—AUD. Synop, 1839, 244; B. Am. v, 1842, 316, pl. 345.

HAB. America in general, but breeding only in cold-temperate and subarctic climates of the northern continent; in winter, south to Chili and Argentine Republic.

SP. CHAR. *Adult, summer plumage:* Above, variegated with slate-black, pale gray, and white, the former predominating, the latter in the form of spots along the edge of the feathers, including the wing-coverts and the tertials; crown and hind neck grayish white, widely streaked with dusky; upper tail-coverts white, irregularly barred with dusky; primaries plain blackish slate; tail white, all the feathers barred with dusky, the middle feathers grayish, barred with dusky, the latter sometimes obsolete. Head, neck, and lower parts

white, only the abdomen and throat immaculate; lores, cheeks, malar region, auriculars, and neck (all round), streaked with dusky; breast, sides, and flanks, barred or transversely spotted with dusky, the bars more sagittate on the crissum. *Winter plumage:* Above, rather light ash-gray, without the black, but with the white spotting of the summer dress; foreneck and jugulum more narrowly streaked; breast nearly or quite immaculate, and sides and flanks faintly and irregularly marked with grayish. *Young, first plumage:* Similar to the winter dress, but darker and more brownish above, the white spotting tinged with light brownish buff; lower parts as in winter adult. Bill black; iris brown; legs and feet deep yellow (tinged with olive in young).

Total length, about 14 inches; wing, 7.50–7.75; culmen, 2.20–2.30; tarsus, 2.50–2.75; middle toe, 1.35–1.50.

"A common migrant and regular summer resident. Breeds. Arrives about the middle of April, the larger portion passing north early in May. Returns September first, and remains until the last of October. In June, 1875, I found several pairs of these birds about the Calumet Marshes, where, from their actions, I was certain they were breeding, but was not fortunate enough to find their nests. The 10th of June, 1876, Mr. Rice observed a pair about a prairie slough, near Evanston. A few days later a set of four eggs were brought him from a similar situation a few miles northwest of that place, and from the description of the parent bird—driven from the nest—he decided they must belong to this species. I perfectly agree with Mr. Rice's decision, for the prominent characteristics noticed by the collector are obviously applicable to this bird.

"The nest was situated in a slight depression at the base of a small hillock near the border of a prairie slough, and was composed of grass stems and blades. The eggs measure respectively 1.70x1.30; 1.72x1.31; 1.74x1.32; 1.80x1.38 inches. The ground color is a deep grayish white, marked on three eggs with spots of dark brown, and on the other egg with spots and well-defined blotches of a considerably lighter shade of the same. In addition there are shell markings and obscure spots of lilac. The markings are disposed quite abundantly over the surface of the egg, but are more numerous about the larger end." (Nelson, *Bull Essex Inst.* VIII., 1876, pp. 128, 129.)

Totanus flavipes (Gmel.)

YELLOW-LEGS.

Popular synonyms. Yellow-leg Snipe; Little Cucu (Plymouth Bay, Mass.).

Scolpax flavipes GMEL. S. N. ed. 13, i, 1788, 659.—WILS. Am. Orn. vii, 1813, 55, pl. 58, fig. 4.
Totanus flavipes VIEILL. Nouv. Dict. vi, 1816, 410.—SW. & RICH. F. B.-A. ii, 1831, 390.—NUTT. Man. ii, 1834, 152.—AUD. Orn. Biog. iii, 1835, 573; v, 586, pl. 228; Synop. 1839, 243; B. Am. v, 1843, 313, pl. 344.—COUES, Key, 1872, 259; Check List, 1874, No. 433; 2d ed. 1882, No. 634; Birds N. W. 1874, 497.—RIDGW. Nom. N. Am. B. 1881, No. 549; Man. N. Am B. 1887, 166.—B. B. & R. Water B. N. Am. i, 1884, 273.—A. O. U. Check List, 1886, No. 255.
Gambetta flavipes BONAP. 1856.—CASS. in Baird's B. N. Am. 1858, 732.—BAIRD, Cat. N. Am. B. 1859, No. 540.

"HAB. The whole of America, breeding in the cold-temperate and subarctic districts of the northern continent; migrating south in winter to Argentine Republic and Chili. Much rarer in the western than in the eastern province of North America. Accidental in Europe.

"SP. CHAR. Very similar to *T. melanoleucus*, but smaller and more slender. Bill rather longer than the head, straight, slender, compressed; wing long, pointed; tail short; legs long, lower half of the tibiæ naked; toes moderate, slender margined, the outer and middle united at base.

"*Adult, summer plumage.* Above, ashy, mixed with ragged blotches of black, this having a tendency to form regular transverse bars on the secondaries and scapulars. Crown and nape with longitudinal streaks of black on a grayish white ground; upper tail-coverts pure white, with transverse bars of dusky; tail white, the middle feathers ashy, and all with transverse, rather narrower, bars of ash. Primaries and their coverts plain dusky black. Lower parts white, the jugulum and breast densely streaked with blackish, and the sides marked with more transverse markings of the same color.

"*Winter plumage.* Above, ashy, sometimes nearly unbroken, but generally slightly variegated, especially on the scapulars and wing-coverts, with transverse spots of dusky, and whitish edging and dots along the margins of the feathers. Streaks almost absent from the head, neck, and jugulum, which are nearly uniform light ashy; the chin, throat, and supraloral stripe white. In other respects like the summer plumage. *Young.* Like the winter adult, but the light markings above more or less tinged with pale brown or dull ochraceous.

"Total length about 10.50–11.00 inches; extent, 20.00–21.00; wing, 5.50–6.50; culmen, 1.30–1.55; tarsus, 2.00. Bill black; iris dark brown; legs and feet bright yellow." (*Water B. N. Am.*)

This species is exceedingly similar to *T. melanoleucus* in plumage, but differs in the following particulars: in the summer adult the upper parts are more transversely spotted, with a less amount of black, while the lower parts are without well-defined transverse spots or bars of black; in the winter plumage, the head, neck, and jugulum are nearly uniform ashy, instead of distinctly streaked.

This species is essentially a "small edition" of the Greater Yellow-legs, or Tell-tale (*T. melanoleucus*) so far as appearance is concerned; and in its general habits is not conspicuously different.

Mr. Nelson refers to it as being much more numerous in northeastern Illinois than the *T. melanoleucus*. He adds that it "frequents the same localities. Arrives a few days later and departs earlier for the south. A few breed. I obtained the young, barely able to fly, near a prairie slough the first of July 1874, a few miles from Chicago, and have since observed several pairs during the breeding season about the Calumet marshes."

Subgenus **Helodromas** Kaup.

Helodromas Kaup, Nat. Syst. 1829, 144. Type, *Tringa ochropus* Linn.

Char. Similar to *Totanus*, but smaller, and with middle toe nearly as long as tarsus.

There is but one American species of this subgenus, and this has a single Old World representative,—the *T. ochropus* (Linn.),—which differs chiefly in larger size and pure white rump.

Totanus solitarius (Wils.)

SOLITARY SANDPIPER.

Popular synonyms. Peet-weet; Wood Snipe or Sandpiper; Pond Peet-weet or Tiltup.

Tringa solitaria Wils. Am. Orn. vii, 1813, 53, pl. 58 fig. 3.

Totanus solitarius Bonap. Jour. Acad. Nat. Sci. Phila. v, 1825, 86.—Aud. Synop. 1839, 242; B. Am. v, 1842, 309, pl. 343.—Coues, Key, 1872, 259; Check List, 1874, No. 435; Birds N. W. 1874, 498.—A. O. U. Check List, 1886, No. 256.—Ridgw. Man. N. Am. B. 1887, 166.

Rhyacophilus solitarius Cass. in Baird's B. N. Am. 1858, 733.—Baird, Cat. N. Am. B. 1859, No. 541.—Ridgw. Nom. N. Am. B, 1881, No. 550.—Coues, Check List, 2d ed. 1882, No. 637.—B. B. & R. Water B. N. Am. i, 1884, 278.

Totanus chloropygius Vieill. Nouv. Dict. vi, 1816, 40.—Sw. & Rich. F. B.-A. ii, 1831, 393.—Nutt. Man. ii, 1834, 159.—Aud. Orn. Biog. iii, 1835, 576; v, 1839, 583, pl. 289.

Hab. The whole of North and Middle America and the greater part of South America, ranging south to Brazil and Peru; breeding throughout temperate North America, but chiefly northward; accidental in Europe.

Sp. Char. *Adult in summer:* Above olivaceous-slate, rather sparsely speckled with white, the crown and nape indistinctly streaked with the same; outer upper tail-coverts barred with white; primaries and primary coverts plain slate-black. Tail white (the middle feathers dusky), all the feathers widely barred with dusky, these bars most numerous on outer webs, where extending to the base of the feathers. Eyelids, supraloral stripe, and lower parts white, the sides of the head, neck (all round), and jugulum streaked with brownish slate; remaining lower parts immaculate. Lining of wing and axillars slate-color, regularly barred with white. *Winter plumage:* Similar to the summer dress, but dark ashy above, less distinctly speckled, and foreneck very indistinctly streaked, or simply washed with ashy. *Young:* Above, grayish brown (lighter and more olivaceous than the adult), thickly speckled with buff; crown and nape plain brownish gray; cheeks and sides of neck nearly uniform gray; foreneck streaked, as in the adult.

Total length, about 8.00–8.50 inches; extent, 15.50–16.50; wing, 5.00–5.40; culmen, 1.15–1.30; tarsus, 1.25–1.30; middle toe, 1.00. Bill greenish brown (in life), dusky terminally; iris brown; legs and feet olive-green in adult, more grayish in young.

With the exception of the Spotted Sandpiper this is the only species of the smaller *Scolopacidæ* which breeds throughout the State. Yet, notwithstanding this fact, its eggs have never yet, so far as is known to the writer, been taken.*

"In Long Island, according to Giraud, it is not very abundant, yet by no means rare. It is distributed singly or in pairs along such creeks as are reached by the tide; and it is also observed about pools and rivulets more remote from the sea. It seldom visits the beach, and is very rarely met with in the salt-marshes on the bays. It often takes up its abode near the habitations of man, preferring his society to that of the numerous species of shore-birds frequenting the seaside. It is not considered game, and is not hunted, and thus becomes quite familiar. When nearly approached it flies but a short distance before it re-alights, to resume its occupation of probing the soft mud for worms and minute shellfish, which abound in its favorite haunts. It also resorts to decayed logs for the purpose of procuring grubs, and from this peculiarity of habit it is by some known as the "Wood Tatler." When surprised it utters a sharp whistling note, raises its wings, and runs nimbly over the miry ground. If closely pursued, it retreats to the opposite side of the pond, arranges its feathers, and soon resumes its usual gentle manners. This bird is very active on the wing, and may sometimes be seen darting after winged insects, which it is very expert in catching; and when flying, its long and gracefully curved wings add greatly to the effect of its neat plumage. It arrives on Long Island in May, and is not seen there after September.

"Wilson states that this species is found in the summer in damp meadows among our highest mountains, from Kentucky to New York, on the mossy margins of mountain springs. He found it unsuspicious, and permitting a near approach without appearing to be in the least alarmed; he had no doubt that these birds regularly bred on Pocono Mountain, near Easton,

*It is not improbable that this species, like its European relative, the Green Sandpiper (*T. ochropus*), deposits its eggs in deserted nests of other birds, such as the Wood Thrush and other species which nest in moist woodlands.

though he could never find their nests. He notes its resemblance, both in manners and markings, to the *Totanus ochropus*, or Green Sandpiper, of Europe.

"Nuttall states that a pair frequented, very familiarly, the small fish-pond in the Botanic Garden in Cambridge, attracted by larvæ that fed on the water-lily. They would trip over the sinking leaves with all the lightness and agility of the Rail." (BREWER.)

In Cook county, Mr. Nelson says that it is a "common migrant," arriving the first of May and remaining until about the 25th, when the majority go farther north. He says: "I have several times taken young of this species just able to fly, and have observed the adults throughout the breeding season. I do not think there is the slightest doubt of its breeding in this vicinity. Departs for the south in August and September."

GENUS **SYMPHEMIA** RAFINESQUE.

Symphemia RAFINESQUE, Jour. de Phys. vii, 1819, 418. Type, *Scolopax semipalmata* GMEL.

CHAR. Bill compressed, very thick, the culmen rounded. The lower mandible scarcely grooved, the upper grooved to about the middle. Culmen slightly convex; gonys ascending. Bill cleft but little beyond base of culmen. Feathers of sides of both mandibles falling short of the nostrils, the lower rather farther forward. Chin-feathers reaching to middle of nostrils. Bill longer than head; about equal to tarsus, which is more than one and one half times the middle toe. Both toes webbed; the emargination of inner web as far forward as the middle of basal joint of middle toe, the outer reaching nearly to the end. Bare portion of tibia rather less than middle toe without claw. Tail nearly even, or a little rounded, not half the wings.

Symphemia semipalmata (Gmel.)*

WILLET.

Scolopax semipalmata GMEL. S. N. ed. 13, i, 1788, 659.—WILS. Am. Orn. vii, 1813, 27, pl. 56, fig. 3.

Totanus semipalmatus TEMM. 1828.—SW. & RICH. F. B.-A. ii, 1831, 388, pl. 67.—AUD. Orn. Biog. iii, 1835, 510; v, 1839, 585, pl. 574; Synop. 1839, 245; B. Am. v, 1842, 324, pl. 347.—COUES, Key, 1872, 258; Check List, 1874, No. 431; Birds N. W. 1874, 494.

Totanus (Catoptrophorus) semipalmatus BONAP. 1827.—NUTT. Man. ii, 1834, 144.

Symphemia semipalmata HARTL. Rev. Zool. 1845, 342.—CASS. in Baird's B. N. Am. 1858, 729.—BAIRD, Cat. N. Am. B. 1859, No. 537.—RIDGW. Nom. N. Am. B. 1881, No. 552; Man. N. Am. B. 1887, 167.—COUES, Check List, 2d ed. 1882, No. 632.—B. B. & R. Water B. N. Am. i, 1884, 285.—A. O. U. Check List, 1886, No. 258.

HAB. Temperate North America, south to Brazil; West Indies. Accidental in Europe.

SP. CHAR. Largest of American Scolopacidæ, except genera *Numenius* and *Limosa*. Primaries black, with nearly the basal half white, producing a very conspicuous patch on the spread wing. *Summer adult:* Above, light brownish gray, streaked on head and neck,

* The western birds have recently (*Auk*, iv, April, 1887, p. 145,) been separated by Mr. Brewster as *S. semipalmata inornata*. This form occurs in Illinois, but whether the true *S. semipalmata* does also, I am not at present able to state.

and spotted and barred on the back, etc., with blackish; beneath, white, tinged with ashy on foreneck and with buff along sides, the former, with jugulum, spotted with dusky, and the latter barred with the same; upper tail-coverts white; tail ashy, more or less distinctly mottled transversely with a deeper shade of the same; wing-coverts plain ash-gray; axillars and lining of wing plain sooty black. *Winter plumage:* Above, plain ash-gray; beneath, immaculate dull white, the foreneck shaded with grayish. *Young:* Above, brownish gray; the feathers margined with pale ochraceous; sides much tinged with the same, and finely mottled transversely with grayish. Bill black; legs and feet grayish. In life, "bill light blue, dusky toward end; iris brown; feet light blue, claws black." (AUDUBON.)

Total length, about 15.00–17.00 inches; extent, 25.00–30.00; wing, 8.00–9.00; culmen, 2.30–2.60; tarsus, 2.40–2.85; middle toe, 1.35–1.40.

"The Willet," says Dr. Brewer, "is one of the most extensively distributed of North American birds. It is not only found along the entire Atlantic coast from Nova Scotia to Florida, and along the entire Gulf coast, but is equally abundant on the Pacific and through nearly all the marshy regions of the interior; it also occurs throughout Central and South America as far south as the Pampas, where it breeds in large numbers."

"Mr. Nelson refers to this species as being a rare summer resident in the marshes and on the wet prairies of northwestern Illinois, where it arrives the last of April, leaving by the first of October. The same writer afterward found it abundant on the shores of Salt Lake, in company with Avocets, where its clamor made it a perfect nuisance to the sportsman. Captain Bendire also noticed it as an abundant summer resident in southeastern Oregon, where he procured several sets of its eggs, which began to be laid about the 10th of May. These birds were quite as abundant in the higher mountain valleys, at an altitude of six thousand feet, as they were in the lower regions, apparently frequenting all marshy localities. Dr. Bryant found this to be an abundant species in the Bahamas, where it was also resident, breeding in all suitable localities, and being known as the 'Duck Snipe.'" (BREWER.)

GENUS **BARTRAMIA** LESSON.

Bartramia LESSON, Traité d'Orn. 1831, 553. Type, *B. laticauda* LESS., = *Tringa longicauda* BECHST.

CHAR. Upper mandible grooved laterally to within the terminal fourth, the lower not quite so far. Culmen concave to near the tip, where it is slightly decurved; gonys straight. Mouth deeply cleft, almost as far back as the anterior canthus of the eye. The culmen only about two thirds the commissure, shorter than the head or tarsus, and about equal to middle toe, without claw. Feathers extending much farther forward on the upper jaw than on the lower, although those of chin reach nearly to end of nostrils. Tarsus one and one half times middle toe and claw; the bare part of tibia not quite equal to the middle toe above; outer toe united at base as far as first joint; web of inner toe very short. Tail long, graduated, more than half the wings.

Bartramia longicauda (Bechst.)

BARTRAM'S SANDPIPER.

Popular synonyms. Bartramian Tatler; Field Plover; Upland Plover; Prairie Plover.

Tringa longicauda BECHST. Uebers. Lath. Ind. Orn. ii, 1812, 453.
Bartramius longicaudus BONAP. Rev. et Mag. Zool. xx, 1857, 59.
Bartramia longicauda COUES, Bull. N. O. C. Apr. 1880, 100; Check List, 2d ed. 1882, No. 640.—RIDGW. Nom. N. Am. B. 1882, No. 555; Man. N. Am. B. 1887, 169.—B. B. & R. Water B. N. Am. i, 1884, 296.—A. O. U. Check List, 1886, No. 261.
Tringa bartramia WILS. Am. Orn. vii, 1813, 63, pl. 59, fig. 2.—AUD. Synop. 1839, 231; B. Am. v, 1842, 248, pl. 327.
Tringa (Euliga) bartramia NUTT. Man. ii, 1834, 168.
Totanus bartramius TEMM. 1820.—SW. & RICH. F. B.-A. ii, 1831, 391.—AUD. Orn. Biog. iv, 1838, 24, pl. 303.
Actiturus bartramius BONAP. 1831.—CASS. in Baird's B. N. Am. 1858, 737.—BAIRD, Cat. N. Am. B. 1859, No. 545.—COUES, Key, 1872, 260; Check List, 1874, No. 438; Birds N. W. 1874, 502.

HAB. Eastern Province of North America, migrating south to Brazil and Peru, and extending north to the interior of Alaska and to Nova Scotia. Breeds throughout its North American range. Occasional in Europe.

SP. CHAR. Bill about as long as the head, rather wide and flattened at base, slightly curved at the tip; nostril with a large membrane; nasal groove long; wing long; tail long for this group; legs moderate or rather long; lower half of the tibia naked; toes moderate, the outer and middle united by a membrane, inner and middle free to the base, hind toe small. *Adult:* Above, grayish brown, the feathers paler and more ochraceous toward their edges, spotted and barred with black; head and neck (except throat) streaked with blackish; crown blackish, divided by a mesial line of buff; throat, belly, and crissum plain buffy white; axillars pure white and clear dusky slate in regular bars of nearly equal width; tail feathers (except middle pair) creamy buff, broadly tipped with white, crossed by a broad subterminal black spot, and with a few irregular narrow bars anterior to this; outer webs of primaries plain dusky slate, the inner webs with wide transverse bars of white on the outer quill, on the others broken into a confused mottling. Rump and upper tail-coverts nearly uniform blackish, the lateral feathers of the latter with their outer webs partly white. *Young:* Similar to the adult, but the buff of the head, jugulum, wings, etc., much deeper, the streaks on the foreneck and jugulum much less distinct, and the back plain black, the feathers bordered with buff. "Bill yellowish green, the tip dusky, the edges toward the base yellow; iris dark hazel; legs and tarsi light yellowish gray, toes rather darker, claws brownish black". *Downy Young:* Above coarsely and irregularly mottled with black on a grayish-white ground, tinged with light rusty. Lower parts buffy white, with about three blackish spots on the flanks, one beneath the eye, a smaller one on the lores, about half-way between the bill and the eye, and a large, nearly vertical, one back of the ears.

Total length, about 12 inches; wing, 6.50–7.00; culmen, 1.10–1.15; tarsus, 1.90—1.95; middle toe, .90–1.05.

To the residents of the prairie districts of our State, the "Upland Plover," or "Field Plover," as this bird is usually named, is as familiar a bird as the Prairie Chicken or Meadowlark. The following observations by Mr. Nelson, will apply to almost any portion of the State with reference to this species:

"Very common summer resident. Arrives early in April and departs in September. Frequents in greatest abundance the borders of marshes and half wild prairies. Quite difficult to approach when it first arrives, but during the breeding season becomes perfectly reckless, and hovers over head or follows through the grass within a few yards until it has escorted the intruder well off its domain. The presence of a dog in the vicinity of its nesting place is the signal for a general onslaught by all the birds in the vicinity, which hover over the dog, and with loud cries endeavor to drive it away. Being but little appreciated as game it is seldom hunted in this vicinity."

Genus **ACTITIS** Illiger.

Actitis Illiger, Prodr. 1811, p. 262. Type, by elimination, *Tringa hypoleuca* Linn.
Tringoides Bonap. Saggio di una dist., etc., 1831, 53. Same type.

Char. Upper mandible grooved to the terminal fourth; the bill tapering and rather acute. Cleft of mouth only moderate; the culmen about five sixths the commissure. Feathers extending rather farther on side of lower jaw than upper, the former reaching as far as the beginning of the nostrils; those of the chin to about their middle. Bill shorter than the head, straight, equal to the tarsus, which is of the length of middle toe and claw. Bare part of tibia half the tarsus. Outer toe webbed to first joint; inner cleft nearly or quite to the base. Tail much rounded, more than half the wing.

Actitis macularia (Linn.)

SPOTTED SANDPIPER.

Popular synonyms. Sand Snipe; Sand Lark; River Peet-weet or Tip-up; River Snipe.

Tringa macularia Linn. S. N. ed. 12, i, 1766, 249.—Wils. Am. Orn. vii, 1813, 60, pl. 59, fig. 1.
Totanus macularius Temm. 1815.—Nutt. Man. ii, 1834, 162.—Aud. Orn. Biog. iv, 1839, 81, pl. 310; Synop. 1839, 242; B. Am. v, 1842. 303, pl. 342.
Tringoides macularius Gray, 1849.—Cass. in Baird's B. N. Am. 1858, 735.—Baird, Cat. N. Am. B. 1859, No. 543.—Coues, Key, 1872, 260; Check List, 1873, No. 346; 2d ed. 1882, No. 638; B. N. W. 1874, 501.—Ridgw. Nom. N. Am. B. 1881, 557.—B. B. & R. Water B. N. Am. i, 1884, 301.
ctitis macularia Naum. Vög. Deutschl. viii, 1836, 34.—A. O. U. Check List, 1886, No. 263.—Ridgw. Man. N. Am. B. 1887, 170.

Hab. The whole of North and Middle America, and South America as far as Brazil; occasional in Europe; no Greenland record. Breeds throughout temperate North America.

Sp. Char. Small, bill rather longer than the head, straight, slender; long grooves in both mandibles; wing rather long, pointed; tail medium, rounded; legs rather long; lower third of the tibia naked; toes long, margined, and flattened underneath, the outer connected with the middle toe by a large membrane, the inner very slightly connected to the middle toe. *Adult:* Upper parts greenish ashy, with a somewhat metallic or bronzed luster and with numerous sagittate, lanceolate, and irregular, mostly transverse, spots of brownish black, having the same lustre. Line over the eye and entire under parts white, with numerous circular and oval spots of brownish black over the whole surface, smaller on the

throat, largest on the abdomen. Primaries plain dusky; tail dark ashy, the outer feathers with dusky and white transverse spots on their terminal portion; axillars immaculate white. *Young:* Above, greenish ashy, the wings with narrow transverse bars of black and buffy most numerous on the coverts. Beneath, white, without any spots, and with an ashy suffusion across the jugulum. *Downy chick:* Above, yellowish gray, with a narrow black dorsal stripe from the bill to the tail; a narrow black line through the eye. Beneath, dull white.

Total length, about 7.75 inches; extent, 13.00-14.00; wing, 4.05–4.30; culmen, .90–1.00; tarsus .90–1.05; middle toe, .70.–80. Mandible and edge of the maxilla pale wax-yellow (in life); rest of bill black; iris dark brown; tarsi and toes pale grayish olive.

This is probably the most generally distributed species of the family, since it is to be found along the banks of nearly every stream, large or small, in the land.

In Cook county, the Spotted Sandpiper is, according to Mr. Nelson, a "very common summer resident." Mr. Nelson's note concerning it continues as follows: "Arrives in April and departs late in autumn. Breeds in abundance among the small sand hills, along the Lake shore. Near Waukegan, the first of June, 1876, I saw Mr. T. H. Douglas secure over two dozen of their eggs in considerably less than an hour. The nests were generally placed under a small shrub or in a thin tuft of grass and the eggs could be seen several yards away."

Genus **TRYNGITES** Cabanis.

Tryngites Cab. Journ. für. Orn. 1856, 418. Type, *Tringa rufescens* Vieill.,=*T. subruficollis* Vieill.

Char. Upper mandible grooved to about the terminal fourth; the lower not quite so far. Culmen and gonys about straight. Mouth deeply cleft more than half way to the eye; the culmen about two thirds the commissure. Culmen much shorter than the head, and about equal to middle toe without claw. Tarsus about one and one sixth as long as middle toe and claw. Bare part of tibia decidedly shorter than middle toe without claw. Toes cleft to the base, with only a very rudimentary web. Upper jaw feathered to the nostrils; the side of the lower, and beneath, feathered much farther, or to the end of the nostrils; the interspace of the rami entirely filled. Tail somewhat graduated, not half the wing.

Tryngites subruficollis (Vieill.)

BUFF-BREASTED SANDPIPER.

Tringa subruficollis Vieill. Nouv. Dict. xxxiv, 1819, 465.

Tryngites subruficollis Ridgw. Proc. U. S. Nat. Mus. viii, 1885, 356; Man. N. Am. B. 1887, 169—A. O. U. Check List, 1886, No. 262.

Tringa rufescens Vieill. Nouv. Dict. xxxiv, 1819, 470 (Louisiana).—Nutt. Man. ii, 1834, 113.—Aud. Orn. Biog. iii, 1835, 451, pl. 265; Synop. 1839, 235; B. Am. v, 1842, 264, pl. 271.

Tryngites rufescens Caban. J. f. O. 1856, 418 (Cuba).—Cass. in Baird's B. N. Am. 1858, 739.—Baird, Cat. N. Am. B. 1859, No. 546.—Coues, Key, 1872, 260; Check List, 1873, No. 439; 2d ed. 1882, No. 641; B. N. W. 1874, 506.—Ridgw. Nom. N. Am. B. 1881, No. 556.—B. B. & R. Water B. N. Am. i, 1884, 305.

Actidurus nævius Heerm. Proc. Acad. Nat. Sci. Phila. vii, 1854, 178; Pacific R. R. Rep. x, pt. vi, 1859, 20, pl. 6 (Texas).

HAB. North America in general, especially the interior; breeding chiefly in the interior of British America and the Yukon district; migrating south to Peru and Uruguay. Frequent in Europe. No West Indian record, except Cuba.

SP. CHAR. Bill shorter than the head, straight, compressed, narrow at the point; nasal groove long; wings very long, first quill longest, the tertials rather shorter; tail moderate or longer than usual in this group; legs rather long, lower third of the tibia naked; toes free at base, flattened underneath, and slightly margined; hind toe small. Upper parts pale and dull ochraceous, with an ashy tinge; every feather with a large central, lanceolate, crescent-shaped, or oblong spot of black, frequently with a glossy green tinge, especially on the back and shorter tertials. Under parts light ochraceous or pale fawn-color, many feathers tipped with white, and paler on the flanks and abdomen, on the breast with partially concealed small spots of black; axillary feathers white. Quills white, their outer webs light brown, inner webs ashy white marbled with black and narrowly tipped with white; middle tail-feathers brownish black; outer feathers lighter, with transverse waved lines of black on the terminal half, and tipped with white; under primary-coverts beautifully marbled with black. Bill greenish black; legs greenish yellow. *Young*. Generally similar, but the upper parts with the black and fawn-color less sharply contrasted, and each feather with a conspicuous terminal border of white. Marbling on inner webs of primaries and on under primary-coverts much more minute and delicate than in the adult. "Bill dull olive-green, dusky toward the point; iris hazel; feet dull yellowish green, claws dusky." (AUDUBON.)

Total length, about 7.50–8.00 inches; wing, 5.10–5.50; culmen, .75–.80; tarsus, 1.15–1.30; middle toe, .75–.85.

This handsome species is, so far as we know, one of the rarer migrants in Illinois. Mr. Nelson mentions a single specimen "in the collection of Mr. R. P. Clarke, obtained upon the Lake shore, at Chicago, September 4th, 1873," and is inclined to doubt Dr. Hoy's statement (Wis. Agr. Rep. 1852) that it is "quite common" near Racine, Wis., from September 15th to October 10th. It may be, however, that it is not so rare as Mr. Nelson supposes, but has escaped his observation, since in other portions of the Mississippi Valley it is very abundant.

SUBFAMILY **NUMENINÆ.**

CHAR. Back of tarsus covered with small hexagonal scales; bill much longer than tarsus, decidedly decurved or arched.

GENUS **NUMENIUS** BRISSON.

Numenius BRISS. Orn. vi, 1760, 311. Type, *Scolopax arquata* LINN.

CHAR. Legs covered anteriorly with transverse scutellæ, laterally and behind with small hexagonal scales. Bill very long, exceeding the tibia, and curved downward for the terminal half; the culmen rounded. Tip of bill expanded laterally and club-shaped. Grooves of bill not reaching beyond the middle. Tertials as long as primaries.

Bill variable in length, always longer than tarsus, sometimes exceeding tarsus and toes. It is nearly straight at the base, then decurving quite rapidly to the tip, where the upper mandible is thickened downward beyond and over the lower. Lateral grooves occupying

only the basal half or third of the bill; under mandible not grooved beneath. Cleft of mouth extending but little beyond the base of culmen. Feathers of head extending about the same distance on both mandibles; those of chin to opposite the anterior extremity of the nostrils. Tarsi nearly twice as long as middle toe, rather more than twice the bare part of tibia. It is covered behind by hexagonal scales larger than the lateral ones. Outer toe webbed at its basal joint; inner for half this distance. Tail short, nearly even, not quite half the wings.

Of the genus *Numenius* several species are found in North America, none of them occurring regularly in the Old World, as is the case with so many of the *Tringinæ*.

The three species occurring in eastern North America may be distinguished as follows:

1. **N. longirostris.** Wing, 10.00–12.00; culmen, 3.80–5.90; tarsus, 2.25–3.50; middle toe, 1.30–1.55. Lower parts pale cinnamon; axillars deep cinnamon, without distinct bars; crown uniformly streaked, without median stripe. *Hab.* Temperate North America south to Guatemala, Cuba, Jamaica, and Brazil (?).
2. **N. hudsonicus.** Wing, 8.00–10.25; culmen, 3.00–4.00; tarsus, 2.25–2.30; middle toe, 1.35–1.40. Lower parts pale buff, the breast marked with linear streaks; inner webs of primaries spotted with buff toward edges; axillars deeper buff, distinctly barred with dusky; crown uniform dusky, divided by a median stripe of pale buff. *Hab.* The whole of America, including West Indies, but breeding only in the colder regions; Greenland.
3. **N. borealis.** Wing, 8.00–8.50; culmen, 2.25–2.50; tarsus, 1.70–1.80; middle toe, 1.00. Very similar to *N. hudsonicus*, but breast with V-shaped dusky markings, axillars pale cinnamon, barred with dusky, inner webs of primaries uniform dusky, the whole crown streaked, and without distinct median stripe. *Hab.* Northern and eastern North America, and southern South America; no West Indian record; Greenland; occasional in Europe.

Only two others are known to occur in the New World. One of these (*N. femoralis*), which has been taken in Alaska, is distinguished by having the thighs ornamented by long bristles, the tail and its coverts ochraceous, the latter crossed by narrow bands of dusky brown; the size and general coloration much as in *N. hudsonicus*. *N. phæopus*, an Old World species which occasionally visits Greenland, is still more like *N. hudsonicus*, from which it differs chiefly in having the rump pure white.

Numenius longirostis Wils.

LONG-BILLED CURLEW.

Popular synonyms. Sickle-bill, or Sickle-bill Snipe or Curlew; Snipe (Salt Lake Valley); Big Curlew.

Numenius longirostris Wils. Am. Orn. viii, 1814, 24, pl. 64, fig. 4.—Sw. & Rich. F. B.-A. ii, 1831, 376.—Nutt. Man. ii, 1834, 94.—Aud. Orn. Biog. iii, 1835, 240; v, 1839, 587, pl. 231; Synop. 1839, 254; B. Am. vi, 1843, 35, pl. 355.—Cass. in Baird's B. N. Am. 1858, 743.—

BAIRD, Cat. N. Am. B. 1859, No. 549.—COUES, Key, 1872, 262; Check List, 1873, No. 441; 2d ed. 1882, No. 643; Birds N. W. 1874, 508.—RIDGW. Nom. N. Am. B. 1881, No. 558; Man. N. Am. B. 1887, 170.—B. B. & R. Water B. N. Am. i, 1884, 311.—A. O. U. Check List, 1886, No. 264.

Numenius occidentalis WOODH. Proc. Acad. Nat. Sci. Phila. vi, 1852, 194; Sitgreaves' Rep. 1853, 98, pl. 6 (= young; Albuquerque, N. M.).

HAB. Temperate North America, migrating south to Guatemala. Cuba; Jamaica; Brazil (?).

SP. CHAR. The largest American species of this genus. Bill very long, much curved; upper mandible longer than the under, somewhat knobbed at the tip; wing rather long; legs moderate; toes united at base. Entire upper parts pale rufous, tinged with ashy; every feather with transverse and confluent bands of brownish black, most numerous and predominating on the back and scapulars; secondary quills, under wing-coverts, and axillars, cinnamon-rufous; primaries with their outer webs brownish black and their inner webs rufous, with transverse bands of black. Under parts pale rufous, with longitudinal lines of black on the neck and sides; tail rufous, tinged with ashy, transversely barred with brownish black. Bill brownish black; base of under mandible reddish yellow; legs bluish brown. Specimens vary to some extentin the shade of the rufous color of the plumage, and very much in the length of the bill. The rufous color is probably more distinct in the young. Total length, about 25.00 inches; extent, about 40.00; wing, 10.00–11.00; tail, 4.00; bill, 2.30 (immature individual) to 8.50; tarsus, 2.25. Bill black, becoming dull light lilac-brown on basal half of the mandible; iris brown; legs and feet gray.

Downy young. Very pale ochraceous with a tinge of sulphur-yellow, rather deeper below than above. Upper parts marbled coarsely and rather irregularly with black. Bill straight, about 1.40 inches long.

This bird appears to vary in size quite materially, and in the length of bill in different specimens so much so as to be quite perplexing; in fact, the bills of scarcely any two specimens are of the same length. In color, also, there is considerable variety, but the species can readily be distinguished.

There are in the National Museum collection specimens which are undoubtedly *N. occidentalis*, Woodhouse, as above cited. The clear rufous of the plumage and the shorter bill, as given by Dr. Woodhouse, are present in these specimens; but the rufous color is very probably characteristic of young age, while in the collection almost any length of bill can be produced, the extremes being about 2.30 and 8.50.

The Long-billed Curlew or "Sickle-bill" is more or less common, according to the locality, during the migrations. Mr. Nelson refers to it in his list (p. 130) as follows:

"Formerly very abundant during the migrations and a common summer resident. Now rather uncommon in the migrations and a very rare summer resident. A pair nested on the Calumet Marshes the spring of 1873. More numerous on the large marshes in central Illinois. Arrives the last of April and departs in October."

Numenius hudsonicus (Lath.)

HUDSONIAN CURLEW.

Popular synonyms. Jack Curlew; Short-billed Curlew.

Scolopax borealis WILS. Am. Orn. vii, 1813, 22, pl. 56, fig. 1 (*nec* FORSTER 1772).
Numenius borealis ORD, ed. WILSON, 1825.—BREWER, ed. WILSON, 1840, 473 (excl. syn.).
Numenius hudsonicus LATH. Ind. Orn. ii, 1790, 712.—SW. & RICH. F. B.-A. ii, 1831, 377.—NUTT. Man. ii, 1834, 97.—AUD. Orn. Biog. iii, 1835, 283; v, 1839, 589, pl. 237; Synop. 1839, 554; B. Am. vi, 1843, 42, pl. 356.—CASS. in Baird's B. N. A. 1858, 744.—BAIRD, Cat. N. Am. B. 1859, No. 550.—COUES, Key, 1872, 262; Check List, 1873, No. 442; 2d ed. 1882, No. 645; Birds N. W. 1874, 509.—RIDGW. Nom. N. Am. B. 1881, No. 559; Man. N. Am. B. 1887, 171.—B. B. & R. Water B. N. Am. i, 1884, 315.—A. O. U. Check List, 1886, No. 265.
Numenius intermedius NUTT. Man. ii, 1834, 100.

HAB. The whole of America, including the West Indies; breeds in the high north, and winters chiefly south of the United States. Greenland.

SP. CHAR. *Adult.* Crown dark sooty brown, divided longitudinally by a mesial stripe of buff; a narrow dusky stripe on side of head, from bill to anterior angle of the eye, continued back beneath the eye and along upper edge of auriculars, separated from the dusky of the crown by a wide, well-defined superciliary stripe of light buff, the chin, throat, and abdomen immaculate; other portions, including cheeks, entire neck, jugulum, and breast marked with linear streaks of dark brown; axillars pinkish buff or dilute cinnamon, barred with dark brown. Upper parts spotted with dark sooty brown and light buff, the latter prevailing on the wing-coverts, the former on the back; rump and upper tail-coverts similarly spotted; primaries dusky, the inner quills spotted with buff.

This species is much rarer than the Long-billed Curlew, and never remains within the State during the breeding season. We are unfortunately unable to present any information of particular interest respecting its habits.

Numenius borealis (Forst.)

ESKIMO CURLEW.

Popular synonyms. Little Curlew; Dough-bird; Futes (Long Island).

Scolopax borealis FORST. Phil. Trans. lxii, 1772, 411, 431 (Albany Fort).
Numenius borealis LATH. Ind. Orn. ii, 1790, 712.—SW. & RICH. F. B.-A. ii, 1831, 378, pl. 65.—NUTT. Man. ii, 1834, 101.—AUD. Orn. Biog. iii, 1835, 69; v, 1839, 590, pl. 208; Synop. 1839, 255; B. Am. vi, 1843, 45, pl. 357.—CASS. in Baird's B. N. Am. 1858, 714.—BAIRD, Cat. N. Am. B. 1859, No. 551.—COUES, Key, 1872, 262; Check List, 1873, No. 443; 2d ed. 1882, No. 646; B. N. W. 1874, 510.—RIDGW. Nom. N. Am. B. 1881, No. 560; Man. N. Am. B. 1887, 171.—B. B. & R. Water B. N. Am. i, 1884, 318.—A. O. U. Check List, 1886, No. 266.

HAB. Eastern Province of North America; breeding in Arctic districts, where extending from the Prybilof Islands (not breeding) to Greenland; migrating south to extremity of South America (Falkland Islands, Patagonia, and Chili); no West Indian record, but noted from Bermuda and Trinidad (Leotaud). Occasional in Europe. Not recorded from western North America.

SP. CHAR. *Adult.* Crown dusky, streaked with buff, but without distinct mesial stripe; a dusky stripe of aggregated streaks on side of head, from bill to and behind the eye; rest of head, neck, and entire lower parts light buff, the cheeks and neck streaked, the breast,

sides, flanks, and crissum with V-shaped markings of dusky brown; axillars and lining of the wing pale cinnamon, the former narrowly barred with dusky. Upper parts spotted dusky and buff, the wing-coverts more grayish brown, with dusky shaft-streaks; primaries, including their inner webs, plain brownish dusky. Rump and upper tail-coverts spotted dusky and light buff. Tail brownish gray, barred with dusky.

In plumage, this little Curlew closely resembles *N. hudsonicus*, but has the inner webs of the primaries either plain dusky or else finely and confusedly mottled, instead of being marked with very distinct and regular ochraceous spots; the breast with transverse V-shaped markings instead of linear, longitudinal streaks, while there are other differences, besides the important one of size, which serve to readily distinguish them.

The Little Curlew or "Dough Bird" is of rather common occurrence in Illinois during the migrations, arriving, according to Mr. Nelson, a little later than *N. hudsonicus*, passing north with short delay, and returning the last of September and in October. While lingering with us it frequents chiefly the wet prairies, in company with the Golden Plover.

Family **RECURVIROSTRIDÆ**.—The Avocets and Stilts.

The *Recurvirostridæ*, in addition to the features already mentioned (see p. 19), are characterized by the excessive length of the legs, with very long slender neck and subulate, elongated bill. The plumage has the same dense, soft character as that of the *Phalaropodidæ*, *Fulicinæ*, *and Longipennes*.

Genera.

A. Hind toe present.
1. **Recurvirostra.** Anterior toes all webbed; bill recurved.

B. Hind toe wanting.
2. **Himantopus.** No web between middle and inner toes, and web between outer and middle toes quite small; bill slightly upturned from the middle, cylindrical or scarcely depressed; tarsus much longer than the bill.

Genus **RECURVIROSTRA** Linnæus.

Recurvirostra Linn. Syst. Nat. ed, 10, i, 1758, 151. Type, *R. avosetta* Linn.

Char. Hind toe rudimentary, but distinct; anterior toes united by a much emarginated membrane. Bill depressed, decidedly recurved, extended into a fine point, which is slightly decurved. Tail covered by the wings.

The species of Avocet are few in number, there being one peculiar to North America, South America, Australia, and Europe respectively.

Recurvirostra americana Gmel.

AMERICAN AVOCET.

Popular synonyms. White Snipe (Salt Lake Valley); Yelper; Lawyer; Scooper.

Recurvirostra americana Gmel. S. N. ed. 13, i, 1788, 693.—Wilson, Am. Orn. vii, 1813, 126, pl. 63, fig. 9.—Nutt. Man. ii, 1834, 75.—Aud. Orn, Biog. iv, 1838, 168, pl. 318; Synop. 1839, 252; Birds Am. vi, 1843, 24, pl. 353.—Baird, Birds N. Am. 1858, 703; Cat. N. Am. B. 1859, No. 517.—Coues, Key, 1872, 147; Check List, 1873, No. 407; 2d ed. 1882, No. 600.—Ridgw. Nom. N. Am. B. 1881, No. 566; Man. N. Am. B. 1887, 146.—B. B. & R. Water B. N. Am. i, 1884, 341.—A. O. U. Check List, 1886, No. 225.

Recurvirostra occidentalis Vig. Zool. Jour. iv, 1829, 356 ; Zool. Voy. Blossom, 1839, 28, pl 12.—Cass. Illustr. B. Cal., Tex., etc., 1855, 232, pl. 40 (=winter plumage!).

HAB. Temperate North America; north to the Saskatchewan and Great Slave Lake, south (in winter) to Guatemala, Cuba, and Jamaica. Much rarer in the Eastern than in the Western Province.

SP. CHAR. Wings (except secondaries, terminal half of greater coverts, and inner secondaries), inner scapulars, and adjoining feathers of the back, brownish black; lower parts, rump, outer scapulars, and middle of the back white; tail ashy white or pale ashy. *Adult in summer:* Head, neck, and breast, light cinnamon, becoming white around the bill and fading gradually into the white of the body. Tertials brownish gray. *Adult (and young) in winter:* Head, neck, and breast, white, more or less tinged with pale bluish gray, especially on crown and nape. *Young:* Primaries slightly tipped with whitish; scapulars and feathers of back tipped or transversely mottled with pale fulvous or buff. Crown dull grayish; nape tinged with light rufous. Total length, about 17.00 to 18.75 inches; extent, 30.00 to 36.00; wing, 8.50–9.00; culmen, 3.40–3.65; tarsus, 3.70–3.80; middle toe, 1.60–1.70. Bill deep black; iris, deep brown; legs and feet ashy blue.

The intensity of the cinnamon-color on the head and neck varies with the individual; sometimes there is a dusky gray suffusion around the eye, this being especially characteristic of younger birds.

Mr. Nelson says that in the northeastern portion of Illinois, the Avocet "generally occurs in small parties the last of April and first of May, and during September and the first of October," and that it "frequents the borders of marshy pools."

GENUS **HIMANTOPUS** BRISSON.

Himantopus BRISS. Orn. vi, 1760, 33. Type, *Charadrius himantopus* LINN.

CHAR. Hind toe wanting; outer and middle toes connected at the base by a short web; the inner toe completely separated from the middle. Bill subulate, deeper than broad, slightly upturned toward the end. Legs excessively lengthened, the bare part of the tibia about half as long as the tarsus, which greatly exceeds the bill in length, the latter being nearly twice the length of the middle toe.

The Stilts have much the same range as the Avocets, but the species are more numerous, there being at the present time about seven recognized by authorities. Like *Recurvirostra*, the genus *Himantopus* is represented in America by two very distinct species; one belonging to North, Central, and northern South America, the other peculiar to the southern portion of the southern continent.

Himantopus mexicanus (Müll.)

BLACK-NECKED STILT.

Popular synonyms. Lawyer; Long-shanks; Pink-stockings.

Charadrius mexicanus MÜLLER, S. N. Suppl. 1776, 117.

Himantopus mexicanus ORD, ed. WILSON, vii, 1824, 52.—BONAP. Comp. List, 1838, 54.—RIDGW. Nom. N. Am. B. 1881, No. 567; Man. N. Am. B. 1887, 147.—COUES, 2d Check List, 1882, No. 601.—B. B. & R. Water B. N. Am. i, 1884, 345.—A. O. U. Check List, 1886, No. 226.

Recurvirostra himantopus WILS. Am. Orn. vii, 1813, 48, pl. 58, fig. 2.

Himantopus nigricollis VIEILL. 1817.—NUTT. Man. ii, 1834, 8.—AUD. Orn. Biog. iv, 1838, 247, pl. 328; Synop. 1839, 252; Birds Am. vi, 1843, 31, pl. 354.—BAIRD, Birds N. Am. 1851, 704; Cat. N. Am. B. 1859, No. 518.—COUES, Key, 1872, 247; Check List, 1874, No. 408; Birds N. W. 1874, 462.

HAB. The whole of temperate North America, Middle America, and northern South America, south to Peru and Brazil; Galapagos; West Indies in general, and Bermudas; north, on the Atlantic coast, to Maine. More generally distributed and more abundant in the Western than in the Eastern Province.

SP. CHAR. *Adult male:* Forehead, a large postocular spot, lores, entire lower parts, rump, and upper tail-coverts white. Remainder of the head, whole nape, back, scapulars, and wings (both surfaces), glossy black, with a greenish blue reflection. Tail pale grayish. Bill black; iris crimson; legs and feet lake-red or beautiful pink in life, yellowish in the dried skin. *Adult female:* Similar to the male, but back and scapulars brownish slate, and the black of other portions duller. *Young, first plumage:* Similar to the adult female, but the feathers of the back, the scapulars, and tertials bordered with deep buff or whitish, the black of the head and nape finely mottled with the same. *Downy young:* Above light fulvous-grayish, mottled with dusky, the back and rump relieved by several large black blotches. Head, neck, and lower parts fulvous-whitish, the crown, occiput, and nape grayish, the crown with a mesial black streak, the occiput with coarse spots of the same.

Total length, about 14–15.50 inches; extent, 27–30; wing, 8.50–9.00; culmen, about 2.50; tarsus, 4.00; middle toe, 1.37. Bill deep black; iris rosy carmine; legs and feet fine rose-pink or delicate pale lake-red (in life).

Adult specimens in high breeding plumage sometimes have the white of the breast, etc., tinged with soft creamy pink.

While on record only as a summer visitant to Illinois, the Stilt undoubtedly breeds in some portion of the State. Mr. Nelson says that it is "an exceedingly rare visitant" to Cook county, and mentions the fact that there is in the collection of the Illinois Natural History Society, at Normal, a fine specimen taken in McLean County. He also says that Dr. P. R. Hoy, of Racine, Wisconsin, records the occurrence of a small flock near that place in April, 1847.

Family **PHALAROPODIDÆ**.—The Phalaropes.

Char. Small birds of Sandpiper-like appearance, but with very full, compact plumage like that of the Coots, Gulls, and Petrels; the tarsus greatly compressed, and the toe partly webbed as well as fringed by a lateral, sometimes scalloped, margin.

The Phalaropes are small northern birds combining the habits, as well as to a certain extent the appearance, of the Waders and Swimmers. The two recognized genera may be distinguished as follows:

Crymophilus. Bill flattened, broad, the nostrils sub-basal; web between outer and middle toe extending to beyond second joint of the latter; lateral membrane of all the toes deeply scalloped.

Phalaropus. Bill subulate, the nostrils strictly basal.

Subgenus *Phalaropus*. Feet as in *Crymophilus*.

Subgenus *Steganopus*. Web between outer and middle toes not reaching to second joint of latter; lateral membrane to all the toes narrow and scarcely scalloped.

Genus **CRYMOPHILUS** Vieillot.

Crymophilus Vieill. Analyse, 1816, 62. Type, *Tringa fulicaria* Linn.

Char. Bill flattened, broad, the nostrils sub-basal; web between outer and middle toes extending to beyond second joint of the latter; lateral membrane of the toes broad and deeply scalloped.

Crymophilus fulicarius (Linn.)

RED PHALAROPE.

Tringa fulicaria Linn. S. N. ed. 10, i, 1758, 148; ed. 12, i, 1766, 249.

Phalaropus fulicarius Sw. & Rich. F. B.-A. ii, 1831, 407.—Nutt. Man. ii, 1834, 236.—Aud. Orn. Biog. iii, 1835, 404, pl. 255; Synop. 1839, 239; B. Am. v, 1842, 291, pl. 339.—Cass. in Baird's B. N. Am. 1858, 707.—Baird, Cat. N. Am. B. 1859, No. 521.—Coues, Key, 1872, 248; Check List, 1874, No. 411; 2d ed. 1882, No. 604; B. N. W. 1874, 471.—Ridgw. Nom. N. Am. B. 1882, No. 563.—B. B. & R. Water B. N. Am. i, 1884, 326.

Crymophilus fulicarius Stejn. Auk, ii, 1885, 183.—A. O. U. Check List, 1886, No. 222.—Ridgw. Man. N. Am. B, 1887, 144.

Hab. Northern portions of the northern hemisphere, breeding in very high latitudes, and migrating southward in winter; chiefly maritime; in America, recorded from as far south as Ohio, Illinois, and Cape St. Lucas.

SP. CHAR. *Adult, summer plumage:* Entire lower parts deep purplish cinnamon; sides of head white. Back and scapulars light ochraceous or buff, striped with black; wing-coverts deep bluish plumbeous, the greater widely tipped with pure white; remiges plumbeous-dusky. Lining of the wing white, bordered exteriorly with dusky grayish. *Male:* Crown and nape streaked, like the back; white on side of head not well defined. *Female:* Crown uniform plumbeous-black or dark plumbeous, the white on side of the head surrounding the eyes, and abruptly defined, the nape unstreaked cinnamon and plumbeous. *Adult and young in winter:* Head, neck and lower parts pure white, the occiput and a space partly or completely surrounding the eyes dark plumbeous. Upper parts uniform fine pearl-gray or light bluish plumbeous, the remiges slate-color. *Young, first plumage:* Crown, nape, back, and scapulars dull black, the feathers edged with ochraceous; wing-coverts, rump, and upper tail-coverts plumbeous, the middle coverts bordered with pale buff, the tail-coverts with ochraceous. Head (except crown) and lower parts generally, white; the throat and jugulum suffused with brownish buff. *Downy young:* Above, bright tawny-buff, marked with broad irregular stripes of black; superciliary stripe bright tawny buff, the two of opposite sides separated only by a narrow and sometimes interrupted dusky streak; pileum bright raw-umber brown, bordered exteriorly with black; chin and throat light fulvous-buff, changing to smoky buff on jugulum; rest of lower parts dull whitish.

Total length, about 7.50 inches; wing, about 5.25–5.50; culmen, .80–.95; tarsus, .80–.85; middle toe, .75–.80.

The Red Phalarope occurs in Illinois as a rare migrant. Its summer home is in the Arctic regions, which it leaves after the assumption of its winter plumage, which is so unlike that of summer as to give the bird a totally different appearance.

GENUS **PHALAROPUS** BRISSON.

SUBGENUS **Phalaropus.**

Phalaropus BRISS. Orn. vi, 1760, 12. Type, by elimination, *Tringa lobata* LINN.
Lobipes "CUV. Règ. Anim. 1817." Type, *Tringa hyperborea* LINN.,=*T lobata* LINN.

CHAR. Similar to *Crymophilus*, but bill subulate, and the nostrils strictly basal.

Phalaropus lobatus (Linn.)

NORTHERN PHALAROPE.

Tringa lobata LINN. S. N. ed. 10, i, 1758, 148; ed. 12, i, 1766, 248
Lobipes lobatus B. B. & R. Water B. N. Am. i, 1884, 330.
Phalaropus lobatus STEJN. Auk, ii, 1885, 183.—A. O. U. Check List, 1886. No. 223.—RIDGW. Man. N. Am. B. 1887, 145.
Tringa hyperborea LINN. S. N. ed. 12, i, 1766, 249 (based on Faun. Suec. 179; Edw. 143; Will. 270; Ray, 132.—*Phalaropus cinereus* BRISS. Orn. vi, 5).
Phalaropus hyperboreus (male) LATH. Ind. Orn. ii, 1790, 775 (excl. syn.; supposed female =*C. fulicarius*).—NUTT. Man. ii, 1834, 239.—AUD. Orn. Biog. iii, 1835, 118; v, 1839, 595, pl. 215.—CASS. in Baird's B. N. Am. 1858, 706.—BAIRD, Cat. N. Am. B. 1859, No. 520.
Lobipes hyperboreus CUV. Règ. Anim. i, ed. 1829, 532.—AUD. Synop. 1839, 240; B. Am. v, 1842, 295, pl. 340.—COUES, Key, 1872, 248; Check List, 1873, No. 410; 2d ed. 1882, No. 603; B. N. W. 1874, 469.—RIDGW. Nom. N. Am. B. 1882, No. 564.

HAB. Northern portions of the northern hemisphere; breeding very far north, and not penetrating far within the tropics in winter; chiefly, but not strictly, maritime. In America, recorded from the following southern localities: Bermudas; Dueñas, Guatemala; Isthmus of Tehuantepec.

SP. CHAR. *Adult:* Above dark plumbeous, the back striped with ochraceous; wings dusky, the greater coverts widely tipped with white; lower parts chiefly white, the neck with more or less rufous. *Female*, with the sides of the neck and jugulum uniform cinnamon-rufous, the plumbeous above pure and continuous. *Male*, with the rufous confined chiefly to the sides of the neck, the jugulum being mixed white and grayish, tinged with rufous; plumbeous above duller and less continuous than in the female. *Young, first plumage:* Crown plumbeous-dusky, with or without streaks; back and scapulars black, distinctly streaked with buff or ochraceous; wings as in adult, but middle coverts bordered with buff or whitish. Forehead, supra-auricular stripe, lores, and lower parts white, the jugulum and sides of breast sometimes suffused with dull brownish; auriculars dusky. *Downy young:* Above, bright tawny, the rump with three parallel stripes of black, enclosing two of lighter fulvous than the ground-color; crown covered by a triangular patch of mottled darker brown, bounded irregularly with blackish; a black line over ears, not reaching to the eye; throat and rest of head light tawny-fulvous; rest of lower parts white, becoming grayish posteriorly.

Total length, about 7.00 inches; wing, 4.00–4.45; culmen, .80–.90; tarsus, .75–.85; middle toe, .65–.75.

This species, which is a rather rare migrant in Illinois, is essentially similar in its habits and distribution to the Red Phalarope. Mr. Nelson's record concerning it is as follows:

"Rather rare migrant the first of May, and the last of September and first of October. Frequents slow streams or marshy pools, where, swimming gracefully from one patch of floating weeds to another, it obtains its food. It is quite gentle and unsuspicious, and I have approached in a boat within five yards of one without its showing the least concern."

SUBGENUS **Steganopus** VIEILLOT.

Steganopus VIEILL. Nouv. Dict. d'Hist. Nat. xxxii, 1819, 136. Type, *S. tricolor* VIEILL.

CHAR. Bill slender and subulate, with strictly basal nostrils, as in *Phalaropus;* web between outer and middle toes not reaching to second joint, the lateral membrane of all the toes narrow and scarcely scalloped.

Phalaropus tricolor (Vieill.)

WILSON'S PHALAROPE.

Phalaropus lobatus WILS. Am. Orn. ix, 1825, 72, pl. 73, fig. 3 (*nec Tringa lobata* LINN).
Phalaropus wilsoni SABINE, App. Frankl. Journ. 1823, 691.—SW. & RICH. F. B.-A. ii, 1832, 405, pl. 69.—NUTT. Man. ii, 1834, 245.—AUD. Orn. Biog. iii, 1835, 400, pl. 254.—CASS. in Baird's B. N. Am. 1858, 705.—BAIRD, Cat. N. Am. B. 1859, No. 519.
Phalaropus (Holopodius) wilsoni BONAP. Synop. 1828, 342.—NUTT. Man. ii, 1834, 245.
Lobipes wilsoni AUD. Synop. 1839, 241; B. Am. v, 1842, 299, pl. 341.

Steganopus wilsoni COUES, Ibis, Apr. 1865, 158; Key, 1872, 248; Check List, 1874, No. 409; 2d ed. 1882, No. 602; B. N. W. 1874, 467.—RIDGW. Nom. N. Am. B. 1881, No. 565.—B. B. & R. Water B. N. Am. i, 1884, 335.

Steganopus tricolor VIEILL. Nouv. Dict. xxxii, 1819, 136.

Phalaropus tricolor STEJN. AUK, ii, 1885, 183.—A. O. U. Check List, 1886, No. 224.—RIDGW. Man. N. Am. B. 1887, 145.

HAB. Temperate North America, chiefly inland; north to eastern Oregon, Saskatchewan, and Nova Scotia; south, in winter, to Brazil and Patagonia. (Not recorded from the Pacific coast of North America.)

SP. CHAR. *Adult female in summer:* Forehead and crown pale pearl-gray, the former with a blackish line on each side; occiput and nape white, changing to plumbeous-gray on the back and scapulars. Stripe on side of head (chiefly back of the eye), and continued down sides of neck, deep black, changing on lower part of the neck into rich dark chestnut, which extends backward, somewhat interruptedly, on each side of the interscapular region; outermost scapulars marked with a similar stripe. A short stripe above the lores and eyes (not reaching to the bill), cheeks, chin, and throat, pure white; foreneck and chest soft buffy-cinnamon, deepest laterally and posteriorly, and fading gradually into creamy buff on the breast; remaining lower parts white. Wings brownish gray, the coverts and tertials margined with paler; rump brownish gray; upper tail-coverts pure white. *Adult male in summer:* Smaller and much duller in color than the female, with the beautiful markings of the latter usually but faintly indicated. *Adult and young in winter*: Above plain light ash-gray; upper tail-coverts, superciliary stripe, and lower parts, white, the chest and sides of breast faintly tinged with pale ashy. *Young:* Crown, back, and scapulars blackish dusky, the feathers conspicuously margined with buffy; upper tail-coverts, superciliary stripe, and lower parts white, the neck tinged with buff. *Downy young:* General color bright tawny, or tawny-brown, paler beneath, the belly nearly white; occiput and nape with a distinct median streak of black, on the former branching laterally into two narrower, somewhat zig-zag lines; lower back and rump with three broad black stripes; flanks with a black spot, and caudal region crossed by a wide subterminal bar of black.

Female. Length, about 9.40–10.00 inches; wing, 5.20–5.30; culmen, 1.30–1.35; tarsus, 1.30–1.35; middle toe, .90–1.00.

Male. Length, about 8.25–9.00; wing, 4.75–4.80; culmen, 1.25; tarsus, 1.20–1.25; middle toe, .90.

This beautiful bird, the adult female of which is by far the handsomest of our small Waders, is a common summer resident in the prairie districts of Illinois.

Mr. Nelson publishes an interesting account of the peculiarities, or characteristics, of this species, in his catalogue of the Birds of Northeastern Illinois (p. 124), which is as follows:

"Very common summer resident in this vicinity. Found in abundance about damp prairies and on grassy marshes. Arrives about the middle of May and remains until into August. I have found its nest from the 25th of May to June 25th. The young usually appear about the middle of June and commence to fly the first of July. The breeding plumage of the female of this species is much brighter and richer than that of the male, as has been recently announced by Mr. A. L. Kumlein (*Field and Forest*, July, 1876). The male builds the nest and attends exclusively to the duties of incubation, it alone possessing the

naked abdomen during the breeding season. The female always remains near, and shows great solicitude upon the nests' being approached. The first plumage of the young, described by Dr. Coues on page 467, "Birds of the Northwest," is retained until they depart for the south, the last of July or early in August. The adults assume the winter plumage during July. This plumage is much like the breeding plumage of the male, except that there is a hoary cast over the back and neck caused by grayish tips to the feathers, and the female has a greater amount of dull chestnut on the sides of the neck. * * *

"The nest is a simple structure of fine grass blades placed in a small saucer-shaped depression, generally in a perfectly open situation, where but slight concealment is afforded by the few surrounding grass blades. Sometimes the eggs are deposited directly upon the ground, without any nest other than the slight hollow. The eggs usually number four and are very dark. Their general appearance is much like that of a small killdeer's egg, with an unusual amount of dark markings."

Order **ALECTORIDES.**—The Cranes, Courlans, Rails, Gallinules, and Coots.

The *Alectorides* are a tolerably well-defined group of birds, related somewhat closely to the *Limicolæ*, but very distinct from the *Herodiones*, to which some of the forms (more especially the *Gruidæ*) bear a teleological resemblance. Typical families of this Order are the *Gruidæ* (Cranes), *Aramidæ* (Courlans), and *Rallidæ* (Rails), all represented in North America. In addition to these families, South America possesses several others which have been placed here, but whether rightly or not, we cannot say. These extralimital families are the *Eurypygidæ* (Sun Bitterns), *Cariamidæ* (Cariamas), and *Psophiidæ* (Trumpeters).

The typical members of the group are præcocial and ptilopædic. The North American families are the following:

A. Size small or medium; head normally feathered or with a frontal shield; middle toe nearly as long as the tarsus; hallux well developed (nearly as long as the first joint of the middle toe), nearly incumbent. (*Ralli.*)

Rallidæ. Size medium to very small; outer primary longer than the sixth, very broad; second nearly or quite equal to the longest. Rectrices almost rudimentary, soft, nearly hidden by the coverts. Bill not curved to one side at tip (usually shorter than the tarsus).

Aramidæ. Size medium or rather large; outer primary shorter than seventh, the inner web very narrow, except at end; second quill much shorter than the longest (fifth). Rectrices well developed, firm, twelve in number. Bill curved to one side at tip, equal to or longer than the tarsus; inner secondaries broad, reaching to end of primaries, their webs partially decomposed.

B. Size large; head partly naked (except in young), or with ornamental plumes; middle toe less than half the tarsus; hallux small, much elevated. (*Grues.*)

Gruidæ. [Characters as above.]

Suborder **RALLI.**

Family **RALLIDÆ.**—The Rails, Gallinules, and Coots.

Char. Small or medium-sized wading or swimming birds, with compressed body, very long toes, which are sometimes (in the Coots) lobed along the edges, short, rounded, concave wings, and very muscular thighs.

The brief diagnosis given above is sufficient to distinguish the Rails, of whatever subfamily, from the Courlans and Cranes, their only near allies. The typical Rails (*Rallinæ*) are of very small to medium size, the typical genus, *Rallus*, being characterized particularly by a lengthened slender bill, while other genera, as *Porzana* and *Crex*, have this member comparatively short and thick. The Coots and Gallinules have the base of the culmen continued upon the forehead, where it widens out into a more or less gibbous or expanded plate or frontal shield. The Coots, however, are peculiar in having the toes fringed with scalloped flaps or lateral lobes.

The three subfamilies occurring in North America may be thus distinguished:

Rallinæ. No frontal process; toes without lateral lobes; size variable; bill sometimes much elongated.

Gallinulinæ. A frontal process, as in *Fulicinæ*; toes without lateral lobes; size large.

Fulicinæ. A frontal process, as in *Gallinulinæ*; toes with a lateral lobed margin; size large.

The several subfamilies having thus been defined, the North American genera may be characterized as follows:

Subfamily **RALLINÆ.**—The Rails.

A. Bill slender, equal to or longer than the tarsus.

1. **Rallus.** (Page 89.)

B. Bill stout, not more than two thirds the tarsus (usually much less).

2. **Porzana.** Middle toe about equal to or slightly longer than tarsus; base of gonys not forming a decided angle; middle of culmen decidedly depressed or concave. (Page 92.)
3. **Crex.** Middle toe shorter than tarsus; base of gonys forming a decided angle; middle of culmen scarcely appreciably depressed. (Not yet found in Illinois.)

Subfamily **GALLINULINÆ.**—The Gallinules.

4. **Ionornis.** Nostril small, oval; middle toe shorter than tarsus; toes without trace of lateral membrane; inner posterior face of tarsus with a single row of large quadrate scutellæ.
5. **Gallinula.** Nostril elongated, slit-like: middle toe longer than tarsus; toes with a decided indication of lateral membrane; inner posterior face of tarsus covered with several irregular rows of small hexagonal scales.

SUBFAMILY FULICINÆ.—THE COOTS.

6. **Fulica.** Nostrils, and proportionate length of toes and tarsus, as in *Gallinula*; toes bordered with a very wide, scalloped, lateral membrane; inner posterior face of tarsus covered with small scales, as in *Gallinula*.[1]

SUBFAMILY FULICINÆ.

GENUS FULICA LINNÆUS.

Fulica LINN. S. N. ed. 10, 1758, 152; ed. 12, i, 1766, 257. Type, *F. atra* LINN.

CHAR. Very similar to *Gallinula*, but the toes margined by a broad, deeply scalloped lateral membrane. Bill shorter than the head, straight, strong, compressed, and advancing into the feathers of the forehead, where it frequently forms a wide and somewhat projecting frontal plate; nostrils in a groove, with a large membrane, near the middle of the bill. Wings rather short, second and third quills usually longest; tail very short; tarsus robust, shorter than the middle toe, with very distinct transverse scales; toes long, each having semi-circular lobes, larger on the inner side; hind toe rather long, lobed.

Almost the only difference between *Fulica* and *Gallinula* consists in the single character of the toes, as pointed out above. The two genera are, however, quite distinct, since there appears to be no species known that is intermediate in the character of the feet.

Fulica americana Gmel.

AMERICAN COOT.

Popular synonyms. Mud-hen; White-billed, or Ivory-billed, Mud-hen; Crow Duck.

Fulica americana GMEL. S. N. i, pt. ii, 1788, 704.—SW. & RICH. F. B.-A. ii, 1831, 404.—NUTT. Man. ii, 1834, 229.—AUD. Orn. Biog. iii, 1835, 291; v, 1839, 568; Synop. 1839, 212; B. Am. v, 1842, 138, pl. 305.—CASS. in Baird's B. N. Am. 1858, 751.—BAIRD, Cat. N. Am. B. 1859, No. 559.—COUES, Key, 1872, 275; Check List, 1873, No. 474; 2d ed. 1882, No. 686; Birds N. W. 1874, 541.—RIDGW. Nom. N. A. B. 1881, No. 580; Man. N. Am. B. 1887, 142.—A. O. U. Check List, 1886, No. 221.

Fulica wilsoni STEPHENS, Shaw's Gen. Zoöl. xii, 1824, 236.

Fulica atra WILS. Am. Orn. ix, 1825, pl. 73, fig. 1 (*nec* LINN.).

HAB. The whole of North America, Middle America, and West Indies; north to Greenland and Alaska, south to Veragua and Trinidad.

SP. CHAR. *Adult:* General color uniform slate-color or slaty plumbeous, the head and neck and anterior central portion of the crissum black; lateral and posterior portions of the crissum, edge of wing, and tips of secondaries white. (In winter the belly suffused with whitish.) Bill milk-white, more bluish terminally, each mandible with a spot of dark brown near the end, bordered anteriorly with a more or less distinct bar of reddish chestnut; frontal shield dark chestnut, or liver-brown, the culmen just in front of this tinged with greenish yellow; iris bright crimson; legs bright yellowish green, the tibiæ tinged behind and above with orange-red; toes light bluish gray, tinged with yellowish green on scutellæ of basal phalanges.[2] *Young:* Similar, but lower parts more gray, and much suffused.

[1] A South American genus, *Porphyriops* PUCHERAN, belonging to the Gallinulinæ, is much like *Gallinula*, but has the lateral margin to the toes more decidedly developed the gonys very short, and much ascending terminally, the culmen very straight and the frontal shield small and very pointed.

[2] Fresh colors of an adult male killed at Wheatland, Indiana, April 15, 1881.

with whitish, especially on the throat and belly; bill dull flesh-color, tinged with olive-greenish, the frontal shield rudimentary; iris brown. *Downy young:* Prevailing color blackish plumbeous; head, neck, and upper parts relieved by numerous crisp, elongated, somewhat filamentous bristles, these sparse, light orange-buff and white on the upper parts, but dense and deep salmon-orange on the head and neck, where the dark plumbeous down is almost or quite concealed; these colored filaments entirely absent from the whole pileum, which is mostly bald toward the occiput, elsewhere covered with closely appressed black bristles; lores densely covered with short, stamen-like, orange-red papillæ. Bill orange-red, the tip of the maxilla black; feet dusky (in skin).

Total length, about 14 inches; wing, 7.25–7.60; culmen (to commencement of frontal shield), 1.25–1.50; tarsus, 2.00–2.20; middle toe, 2.45–2.65.

The Coot is an exceedingly abundant summer resident in the more northern portions of the State. Mr. Nelson, in his list of the birds of Cook and adjacent counties (*Bull. Essex Inst.* VIII., 1876, pp. 135, 136), says the following concerning it:

"Exceedingly abundant. Summer resident in large marshes, and it is far from rare in any marshy situation. Arrives the last of April and remains until the last of November. Nests at the same time as the Florida Gallinule, but shows a greater preference for reed patches, in which its nests are usually located, often in from two to four feet of water. The nests are generally larger than those of gallinules, and rarely composed of other material than the dry stalks of reeds. Dr. Coues's description of the nidification of this species will answer for most of the cases I have observed, and I have examined a large number of nests. (See "Birds of the Northwest," p. 542.) As winter approaches, and the marshes and shallow pools become covered with ice, these birds congregate in immense flocks on the rivers and small lakes, and remain until the cold weather closes the streams.

"This bird has a curious habit when approached by a boat in a stream, rising often before the boat is within gunshot, and flying directly by the boatman, generally so near that it may be easily brought down. The abundance of ducks and other game birds has caused the birds of this family to be but little molested, until within a few years, when the amateur sportsmen from Chicago, finding the ducks difficult to obtain, and "mud-hens," as coots and gallinules are called, conveniently tame, have turned their batteries upon them and have caused a diminution in their numbers about the Calumet Marshes. But in the more retired marshes they still breed in undiminished numbers."

Subfamily GALLINULINÆ.

Genus GALLINULA Brisson.

Gallinula Briss. Orn. vi, 1760, 3. Type, *Fulica chloropus* Linn.

Char. Bill shorter than head, compressed, its vertical outlines convex terminally, straight or slightly concave opposite the nostril; nostril elongated, longitudinal, slit-like; forehead covered by an extension of the horny covering of the bill (rudimentary in the young). Middle toe longer than the tarsus; toes with a slight lateral membrane or margin.

The above characters will serve readily to distinguish the species of this genus from the American genera, *Ionornis* and *Porphyriops*, the former having the nostril small and oval, the middle toe shorter than the tarsus, and the toes without trace of lateral membrane, while the latter (an exclusively South American genus) has the frontal shield small and conical, and is, moreover, composed of birds of small size. Two American species of *Gallinula* are known, one of them (*G. garmani* Allen) peculiar to the basin of Lake Titicaca, Peru. Both are more nearly allied to the *G. chloropus* of Europe than to any other species, but are very distinct from that, as well as from each other.

Gallinula galeata (Licht.)

FLORIDA GALLINULE.

Popular synonyms. American Gallinule; Scarlet-fronted Gallinule; Red-billed Mud-hen.

Crex galeata Licht. Verz. Doubl. 1823, 80, No. 826.

Gallinula galeata Bonap. Am. Orn. iv, 1832, 128.—Nutt. Man. ii, 1834, 221.—Cass. in Bairds B. N. Am. 1858, 752.—Baird, B. N. Am. 1859, No. 560.—Coues, Key, 1872, 275; Check List, 1873, No. 472; 2d ed. 1882, No. 684; Birds N. W. 1874, 540.—Ridgw. Nom. N. Am. B. 1881, No. 579; Man. N. Am. B. 1887, 141.—A. O. U. Check List, 1886, No. 219.

Gallinula chloropus Bonap. Synop. 1828, 336 (*nec* Lath.).—Aud. Orn. Biog. iii, 1835, 330, pl. 224; Synop. 1839, 210; B. Am. v, 1842, 132, pl. 304.

Hab. The whole of tropical and temperate America, from Canada to Brazil and Chili.

Sp. Char. *Adult:* Frontal plate large, obovate, truncated or slightly convex posteriorly, flat and smooth, or tumid and corrugated. Bill shorter than the head, rather thick, compressed. Head, neck, and entire lower parts dark plumbeous, with a bluish cinereous cast, frequently nearly black on the head and neck, and generally lighter (in autumnal and winter specimens quite white) on the abdomen. Crissum white, the middle feathers black; feathers of the flanks widely edged with white, producing broad stripes; edge of the wing and edge of outer primary white. Upper parts dark russet, or sepia-brown, darker on the rump. Bill and frontal shield bright vermilion in life, the end of the former greenish yellow or bright yellow; iris brown; legs and feet yellowish green, the joints ashy blue; upper

part of the naked tibiæ scarlet. *Young:* Similar, but frontal shield rudimentary, the bill brownish, paler at the tip; the whole lower parts suffused with whitish, and the head mixed with the same, particularly the throat, which is sometimes wholly white. Stripes on the flanks less distinct or nearly obsolete. *Downy Young:* Glossy black, the median lower parts fuliginous; throat and cheeks interspersed with silvery white hairs; bill yellowish (red in life?) crossed about the middle by a dusky bar.

Total length, about 12.00–13.00 inches; extent, 20.00 to 21.00; wing, 6.85–7.25; culmen (to end of frontal shield) 1.70–1.85; tarsus, 2.10–2.30; middle toe, 2.50–2.60.

This species much resembles the Moor-hen, Water-hen, or Gallinule of Europe (*G. chloropus*), but is larger, has the frontal shield truncated instead of pointed posteriorly, and is otherwise different. It likewise resembles other exotic species, particularly *G. garmani* of the Peruvian Andes, but is quite distinct. Specimens vary a great deal in the size and shape of the frontal shield, and in the amount of white on the abdomen. These variations are by no means dependent on locality, however, but upon the individual, having doubtless some connection with age and season, the white on the abdomen being more marked on winter specimens.

Although in most places less numerous than the Coot (*Fulica americana*), the Florida Gallinule is, in favorable localities, a common summer resident throughout the State. Mr. Nelson bears witness to its abundance in Cook county, and in his excellent list gives us the following information concerning it:

"Abundant summer resident everywhere in marshes and the larger prairie sloughs. Arrives the last of April or the first of May. Generally has a full set of eggs, numbering from seven to twelve, the first week of June. Its nests are placed wherever fancy dictates; on low ridges a rod or more from the water; in perfectly bare situations on the borders of marshes, or in the midst of bulrushes or wild rice growing in several feet of water. The material used varies with the situation, from fine grasses to the coarsest rushes and fragments of wild rice stalks. In the latter case the nest often floats in the water and is held in place by the surrounding reeds. The young possess the usual black down and disproportionate feet of members of this family at an early age, but the basal two thirds of the bill is bright red, the tip only being yellow. I have placed eggs under a hen, but the young, unless removed as soon as hatched, would scramble out and manage to get away. At this age they have a clear metallic peep, quite unlike that of a chicken."

GENUS IONORNIS REICHENBACH.

? *Porphyrula* BLYTH, Cat. B. Asiat. Soc. 1849, 283. Type, *P. chloronotus* BLYTH.[1]
Ionornis REICHENB. Syst. Av. 1853, p. xxi. Type, *Fulica martinica* LINN.

CHAR. Similar to *Gallinula* but form more slender, nostrils small and oval, middle toe shorter than the tarsus, and the toes without trace of lateral membrane. Colors very handsome (chiefly opaque blue, purple, and green).

Whether the American species, to which the generic name adopted above is properly applicable, is congeneric with the old world species (*Porphyrio chloronotus* BLYTH, *nec* VIEILL.), which is the type of the genus *Porphyrula* BLYTH, is at present uncertain. [*Cf.* D. G. ELLIOT: "The Genus Porphyrio and its Species;" separate pamphlet, from "Stray Feathers," pp. 1–20.]

Ionornis martinica (Linn.)

PURPLE GALLINULE.

Popular synonyms. Blue Coot; Blue Peter; Blue Mud-hen.

Fulica martinica LINN. S. N. i, 1766, 259.
Gallinula martinica LATH. 1790.—NUTT. Man. ii, 1834, 221.—AUD. Orn. Biog. iv. 1838, 37, pl. 305; Synop. 1839, 210; B. Am. v, 1842, 128, pl. 303.—CASS. in Baird's B. N. Am. 1858, 753.—BAIRD, Cat. N. Am. B. 1859, No. 561.
Porphyrio martinica GOSSE, Birds Jam. 1847, 377.—COUES, Key, 1872, 275; Check List, 1873, No. 473.
Ionornis martinica REICH. Av. Syst. 1853. 21.—RIDGW. Proc. U. S. Nat. Mus. iii, 1881, 202, 227; Nom. N. Am. B. 1881, No. 578; Man. N. Am. B. 1887, 141.—COUES, Check List, 2d ed. 1882, No. 685; A. O. U. Check List 1886, No. 218.
Gallinula porphyrio WILS. Am. Orn. ix, 1824, 69, pl. 73.

HAB. The whole of tropical and warm-temperate America, south to Brazil; north, casually, to Massachusetts, Maine, New York, Ohio, Wisconsin, Illinois, and Missouri. Bermudas and throughout West Indies. Not recorded from any part of the United States west of the Rocky Mountains.

SP. CHAR. *Adult:* Head, neck, and lower parts slaty bluish purple, darker (sometimes nearly black) on abdomen and tibiæ; crissum pure white; upper parts bright olive-green, changing to bright verditer-blue toward the purple of the lower parts, the sides and lining of wing also greenish blue; wings brighter green than the back, and shaded with bright verditer-blue. Frontal shield bright blue in life (greenish or olivaceous in dried skin); bill bright red, tipped with yellow; iris crimson; legs and feet yellowish. *Young:* Above, light fulvous-brown, tinged with greenish on wings; beneath, fulvous or buffy, the belly whitish; frontal shield smaller than in adult, dusky (in skins); bill dull yellowish. *Downy young:* "Entirely black," (AUDUBON). Total length about 12.50 inches; wing, 7.00–7.50; culmen (including frontal shield), 1.85–1.95; tarsus, 2.25–2.50; middle toe, 2.25–2.35.

Specimens vary remarkably in the size and form of the frontal plate. In 36,785 Ceara, Brazil, it is broader than long, and its posterior margin rounded; usually it is longer than broad, and its posterior extremity an angle—sometimes acute. There is also much difference among individuals in the intensity of the colors.

[1] The interrogation mark here implies the doubt as to whether the Indian bird is congeneric with the American species. Should such prove to be the case, which we do not regard probable, our bird would stand as *Porphyrula martinica*.

All these variations appear, however, to be purely individual (perhaps partially seasonal), or at least entirely independent of locality.

This essentially southern species is comparatively a rare bird in Illinois, though it may be more common than the records show. According to Mr. Nelson, a male specimen was taken in May, 1886, by Mr. C. N. Holden, Jr., near Chicago, and he was informed by Dr. Hoy that a specimen had been captured at Racine. Its general habits are much like those of the Florida Gallinule (*Gallinula galeata*).

Subfamily **RALLINÆ**.

Genus **RALLUS** Linnæus.

Rallus Linn. S. N. ed. 10, 1758, 153; ed 12, 1766, 261. Type, *R. aquaticus* Linn.

Char. Bill longer than the head, rather slender, compressed; upper mandible slightly curved; nostrils in a long groove, and with a large membrane; wings short; tertiary quills long, frequently longer than the primaries; tail very short; legs moderate; tarsus shorter than the middle toe, and covered on all sides with transverse scales; toes long and rather slender; inner toe rather shorter than the outer; hind toe short and weak.

This genus contains numerous species, inhabiting all the temperate countries of the world. They are very similar in their habits, and frequently in appearance. Their long toes enable them to run over and climb amongst aquatic plants with great facility.

Synopsis of the North American Species.

Common Characters. Above olive or ashy, with more or less distinct broad longitudinal stripes of darker; beneath concolored anteriorly, variegated with bars on the flanks and crissum. Breast more or less reddish; flanks and crissum with brown and white transverse bars; a supraloral light stripe. Wing-coverts usually more rufescent than back.

A. Size large (wing more than five inches).

a. Axillars and flanks dusky, with wide white bars (bars about .15 of an inch wide on flanks).

1. **R. elegans.** Back and scapulars ochraceous-olive or yellowish drab, sharply and conspicuously striped with black; breast deep cinnamon. Wing, 5.90–6.80; culmen, 2.10–2.50; least depth of bill, .22–.35; tarsus, 1.90–2.40; middle toe, 1.70–2.10. *Hab.* Fresh-water marshes of eastern North America.

b. Axillars and flanks brownish gray, with narrow white bars (bars about .10 of an inch wide on flanks).

2. **R. crepitans.** Back and scapulars brownish gray or ashy, obsoletely striped with brown (in Gulf coast specimens distinctly striped with dusky); breast pale buff (in Gulf coast specimens dull cinnamon). Wing, 5.20–6.00; culmen, 2.05–2.50; least depth of bill, .22–.35; tarsus, 1.85–2.10; middle toe, 1.75–2.00. *Hab.* Salt-water marshes of eastern United States.

B. Size small (wing less than 4.50 inches).

3. **R. virginianus.** Similar to *R. elegans*, but rather more deeply colored. *Hab.* North and Middle America.

Rallus elegans Aud.

KING RAIL.

Popular synonyms. Red-breasted Rail; Great Red-breasted Rail; Marsh Hen; Sedge Hen; Mud-hen.

Rallus crepitans WILS. Am. Orn. vii, 1813, pl. 62, fig. 2 (fig. but not descr. Not *R. crepitans* GMEL.).—(?) ALLEN, Bull. Mus. Comp. Zoöl. iii, 1872, 182 (Great Salt Lake, Utah).[1]

Rallus elegans AUD. Orn. Biog. iii, 1835, 27, pl. 203; Synop. 1839, 215; B. Am. v, 1842, 160, pl. 309.—BAIRD, B. N. Am. 1858, 746; Cat. N. Am. B. 1859, No. 552.—COUES, Key, 1872, 273; Check List, 1873, No. 466; 2d ed. 1882, No. 676; Birds N. W. 1874, 535.—RIDGW. Nom. N. Am. B. 1881, No. 569; Man. N. Am. B. 1887, 138.—A. O. U. Check List, 1886, No. 208.

HAB. Fresh-water marshes of the Eastern Province of the United States, north, casually, to Massachusetts, Maine, and Ontario, regularly to the Middle States and northern Illinois; west to Kansas (Great Salt Lake, ALLEN?[2]). Replaced in the salt marshes along the Atlantic and Gulf coasts by representative forms of *R. crepitans*.

SP. CHAR. *Adult:* Above, yellowish olive or ochraceous-drab, very conspicuously and sharply striped with black; crown dark brown; a supraloral streak of brownish white, continued to the occiput in a broader stripe of brownish gray; lores and suborbital region brownish gray or dull brownish; chin and throat white; remainder of head and neck, including chest and breast, light cinnamon; flanks and sides dark brownish or blackish dusky, barred with white, the white bars averaging about .10–.15 of an inch in width, the interspaces more than twice as wide; crissum mixed dusky and white, the lateral feathers almost immaculate white; middle of the abdomen considerably lighter than the breast, sometimes quite white; axillars and lining of the wing similar to the flanks, but white bars narrower, and less distinct. Wing-coverts rusty brownish, sometimes inclining to chestnut, and not infrequently more or less barred with reddish white; tertials widely striped, like the scapulars; remiges plain umber brown; rectrices raw-umber, with a dusky medial stripe. "Lower mandible and edges of upper brownish yellow; ridge of upper, and tips of both, deep brown; iris bright red; feet yellowish brown, tinged with olive; claws of the same color" (AUDUBON). *Downy young:* Uniform glossy black; bill dusky, the end, and incomplete wide band near the base (enclosing the nostril), pale yellowish or whitish (in the skin); legs and feet brownish (in skin).

Total length, about 17 inches; wing, 5.90–6.80; culmen, 2.12–2.50; depth of bill in middle, .27–.35; tarsus, 2.20–2.40; middle toe, 1.80–2.10.

The individual variation in this species is very considerable, both as regards coloration and the proportions; but it may always be readily distinguished from the allied forms by the characters pointed out above, the very conspicuous, sharply-defined, and broad black stripes above, upon an ochrey brown or yellowish olivaceous ground-color, combined with the cinnamon breast and dark flanks, being the prominent distinctive features. The chief variation in colors consists in the degree of ashiness on the side of the head (some examples being distinctly ashy, as in most specimens of *R. crepitans*), and in the precise shade of the ground-color of the upper parts, which, however, is never ashy.

[1] May possibly be *R. obsoletus*.

[2] No specimens seen: may possibly be *R. obsoletus*.

This fine bird, the largest of the American true Rails, is a common summer resident, in suitable localities, throughout the State. In Cook county it arrives, according to Mr. Nelson, "the last of April and departs in October."

Rallus virginianus Linn.

VIRGINIA RAIL.

Rallus virginianus Linn. S. N. ed. 12, i, 1766, 263.—Wils. Am. Orn. vii, 1813, 109, pl. 62, fig. 1.—Nutt. Man. ii, 1834, 205; Aud. Orn. Biog. iii, 1835, 41; v, 1839, 573, pl. 205; B. Am. v, 1842, 174, pl. 311.—Baird, B. N. Am. 1858, 748; Cat. N. Am. B. 1859, No. 554.—Coues, Key, 1872, 273; Check List, 1873, No. 467; 2d ed. 1882, No. 677; Birds N. W. 1874, 536.—Ridgw. Bull. Nutt. Orn. Club, v, No. 3, 1880, 140; Nom. N. Am. B. 1881, No. 572; Man. N. Am. B. 1887, 138.—A. O. U. Check List, 1886, No. 212.

Hab. The whole of temperate North America as far as the British Provinces, south to Guatemala and Cuba; winters almost to the northern limit of its range.[1]

Sp. Char. *Adult:* A miniature of *R. elegans*, but more deeply colored. Above olivaceous, heavily striped with black; wing-coverts chestnut-rufous; remiges plain dusky; crown and nape dusky, sometimes uniform, usually indistinctly streaked with olive; a brownish white supraloral line; side of head uniform plumbeous (sometimes obscured with a brownish wash); malar region, foreneck, chest, breast, sides, and abdomen, sometimes throat also, cinnamon, the middle of the belly lighter (sometimes whitish); flanks (not sides) and axillars dusky, barred with white; lining of wing dusky, the feathers tipped and bordered with white. *Downy young:* Glossy black; bill scarlet or orange-red in life (whitish or pale yellowish in the skin), slightly marked with blackish in front of the nostril and on the base of mandible. *Young (first plumage):* "Top and sides of head, neck behind, back anteriorly, rump, breast, and sides, dull dead black. Interscapular region black, with a few of the feathers margined with brownish olive. Wing-coverts and wings nearly as in adult, a little duller and darker, perhaps. Superciliary line obscure ashy. Throat ashy white, finely spotted with black. Central region of lower breast and abdomen, with a few of the feathers on the sides, tinged with white. Anal region and crissum dull reddish chestnut. In my cabinet, from Cambridge, Mass., August, 1875. Several other specimens of corresponding ages agree closely with the one above described. A male, however (Cambridge, Aug. 9, 1875), differs in having a faint reddish wash over the white on the breast and abdomen." (Brewster, *Bull. Nutt. Orn. Club*, Jan, 1879, p. 45).

Total length, about 7.50 inches; wing, 3.90–4.25; culmen, 1.45–1.60; tarsus, 1.30–1.40; middle toe, 1.20–1.40. "Bill dark brown, the lower mandible and edges of upper yellowish brown; iris bright red; feet yellowish brown tinged with olive; claws more dusky." (Audubon.)

This species is very much like *R. elegans* in miniature, being exceedingly similar to that species in coloration. Close examination, however, reveals several important differences, the more obvious of which are the following: The whole plumage is darker; the sides of the head more uniformly and distinctly plumbeous; the sides and abdomen are cinnamon, like the breast, instead of being respectively barred, like the flanks, and

[1] A specimen was sent by Captain Bendire to the National Museum from Walla Walla, Washington, which was shot Jan. 16, 1879, when the snow was more than a foot deep!

plain buff or whitish; the lining of the wings is not barred like the flanks, but has dusky and white irregularly mixed, the latter color being on the margins and tips of the feathers. There is apparently more of individual variation in this species than in any of the larger species, scarcely two examples being closely alike. The chin and throat may be distinctly white, or the cinnamon may extend forward entirely to the bill; some specimens have the lores decidedly dusky, others, clear plumbeous, like the auriculars; the crissum is sometimes plain cinnamon, the concealed bases of the feathers dusky, but oftener is white, tinged with cinnamon.

Almost the same general remarks will apply to this miniature of the King Rail (*R. elegans*) as to its larger relation. It is a common summer resident in Illinois, especially northward. In Cook county, Mr. Nelson says it arrives and departs with the *R. elegans*. He adds: "I have obtained nests with eggs from the 6th of May until the middle of June. This species is found in almost any place where it can find suitable food. I have often flushed it in thickets when looking for woodcock, as well as from the midst of large marshes. The nest can rarely be distinguished from that of the Carolina Rail in form or structure, and is generally placed in a similar location, with the exception that the present species shows a greater preference for dense tufts of grass. I have never seen more than nine eggs in a nest of this species."

GENUS **PORZANA** VIEILLOT.

Porzana VIEILL. Analyse, 1816, 61. Type, *Rallus porzana* LINN.—CASS. in Baird's B. N. Am. 1858, 748.

Creciscus CABAN. Jour. für. Orn. 1856, 428. Type, *Rallus jamaicensis* GMEL.

Coturnicops BONAP. "Compt. Rend. xliii, 1856, 599." Type, *Fulica noveboracensis* GMEL.

CHAR. Bill shorter than the head, compressed, straight; nostrils in a wide groove, with a large membrane; wings moderate; primaries longer than tertials; tail short; tarsus about the length of the middle toe; toes long; inner toe slightly shorter than the outer. General form compressed and slender; legs rather robust.

This genus contains very numerous species, inhabiting both temperate and tropical regions, frequenting marshes and borders of rivers. In the spring and autumn several species migrate in large numbers.

We have not at hand the required material for defining the exact limits of the genus *Porzana*, so far as its American representatives are concerned. Without, therefore, considering any of the extralimital species, it may suffice to say that of the three which occur in North America, one (*P. carolina*) is a very near relative of the type of the genus (*P. porzana* of Europe), while the other two are perhaps sufficiently different to justify generic separation. The three species which occur in eastern North America may be distinguished as follows:

A. Above russet-olive, with black blotches and irregular, partly longitudinal, streaks of white. (*Porzana.*)

1. **P. carolina.** Neck and breast without white specks; throat blackish, and sides of head and neck plumbeous in adult; throat white, sides of head and neck, with chest and breast, fulvous-olive, in young; flanks broadly barred with white and slate-color. Wing, 4.15–4.30; culmen, .75–.90; tarsus, 1.25–1.35; middle toe, 1.30–1.45. *Hab.* North and Middle America.

B. Above ochraceous, with broad black stripes and narrow transverse white bars; secondaries white, forming a conspicuous patch on the extended wing. (*Coturnicops.*)

2. **P. noveboracensis.** Head, neck, and breast ochraceous; flanks dusky, barred with whitish; crissum cinnamon; lining of wing and axillars white. Wing, 3.00–3.60; culmen, .50–.60; tarsus, .95–1.00; middle toe, .90–1.00. *Hab.* North America.

C. Above blackish brown, speckled with white. (*Creciscus.*)

3. **P. jamaicensis.** Nape dusky chestnut or sepia-brown; lower parts slate-color or dark plumbeous (the throat sometimes whitish), the posterior portions narrowly barred with white. Wing, 2.50–3.20; culmen, .50–.60; tarsus, .75–.90; middle toe, .85–.95. *Hab.* Temperate and tropical America.

Porzana carolina (Linn.)

SORA.

Popular synonyms. Sora Rail; Carolina Rail; Common Rail; Ortolan (Potomac River).

Rallus carolinus Linn. S. N. ed. 10, i, 1758, 153; ed. 12, i, 1766, 263.—Sw. & Rich. F. B.-A. ii, 1831, 403.—Aud. Orn. Biog. iii, 1835, 251; v, 1839, 572, pl. 233.

Rallus (Crex) carolinus Bonap. Obs. Wils. 1825, No. 230.—Nutt. Man. ii, 1834, 209.

Ortygometra carolina Bonap. List, 1838, 53.—Aud. Synop. 1839, 213; B. Am. v, 1842, 145, pl. 306.

Porzana carolina Cass. in Baird's B. N. Am. 1858, 749.—Baird, Cat. N. Am. B. No. 555.—Coues, Key, 1872, 273; Check List, 1873, No. 468; 2d ed. 1882, No. 679; Birds N. W. 1874, 538.—Ridgw. Nom. N. Am. B. 1881, No. 574; Man. N. Am. B., 1887, 139.—A. O. U., Check List, 1886, No. 214.

Hab. The whole of temperate North America, but most common in the Eastern Province; West Indies in general; whole of Middle America, south to Colombia and Venezuela; accidental in Greenland and Europe; Bermudas (numerous in migrations). Breeds chiefly in the northern parts of its range.

SP. CHAR. *Adult:* Above bright olive-brown, with longitudinal spots of black, some of the feathers edged with white; top of head with a long longitudinal stripe of black; anterior portion of head, with chin and throat, black; sides of head and neck (except as described), chest, and breast light plumbeous; abdomen white; anal region and crissum creamy white or pale buff; flanks sharply barred with white and slate-color. *Young:* Similar, but lores and superciliary stripe brownish, the chin and throat whitish; rest of neck, with chest and breast, light brownish. Bill greenish yellow (more orange, especially at base, in summer adults); iris brown; legs and feet greenish. "*Downy stage*—chick a few days old: Bill short, exceedingly depressed, high at base, rapidly tapering, the tip deflected. The whole body densely covered with dull black down, beyond which are produced abundant long, glossy, black hair-like filaments. Upon the throat is a tuft of stiff, coarse bristle-like feathers of a bright orange-color. These are directed forward, and give the bird a most singular appearance. (From a specimen in my cabinet collected at Cambridge, Mass., June 24, 1874.) This bird, although the only specimen of the kind now at hand, is one of a large brood which was attended by the female parent. Several of the others were distinctly seen and closely examined at the time. All had a similar orange tuft upon the throat." [BREWSTER, in *Bull. Nutt. Orn. Club*, January 1879, p. 48.]

The most abundant and most universally known bird of its genus inhabiting the United States, and variously known as the "Rail," "Sora," or "Ortolan," according to locality. It is especially numerous along the creeks and rivers on the Atlantic during the autumnal migration, when excursions for obtaining it are a favorite amusement of gunners and sportsmen. It appears to inhabit the entire temperate regions of North America. There is apparently little, if any, geographical variation noticeable in a large series of specimens, and the principal individual variation consists in the extent of the black on the throat, which in some examples extends back as far as the middle of the abdomen.

Mr. Nelson thus describes the nesting habits of the Sora:

"Exceedingly abundant summer resident in all marshy situations. Arrives the first of May and departs in October. Nests along the borders of prairie sloughs and marshes, depositing from eight to fourteen eggs. Their nest may often be discovered at a distance by the appearance of the surrounding grass, the blades of which are in many cases interwoven over the nest, apparently to shield the bird from the fierce rays of the sun, which are felt with redoubled force on the marshes. The nests are sometimes built on a solitary tussock of grass, growing in the water, but not often. The usual position is in the soft, dense grass growing close to the edge of the slough, and rarely in grass over eight inches high. The next is a thick matted platform of marsh grasses, with a medium-sized depression for the eggs."

Porzana noveboracensis (Gmel.)

YELLOW RAIL.

Popular synonym. Little Yellow Rail.

Fulica noveboracensis GMEL. S. N. i, pt. ii, 1788, 701.

Ortygometra noveboracensis STEPHENS, 1824.—AUD. Synop. 1839, 213; B. Am. v, 1842, 152, pl. 307.

Rallus noveboracensis BONAP. 1827; Am. Orn. iv, 1832, 136, pl. 27, fig. 2.—NUTT. Man. ii, 1834, 215.—SW. & RICH. F. B. A. ii, 1831, 402.—AUD. Orn. Biog. iv, 1838, 251, pl. 329.

Porzana noveboracensis CASS. in Baird's B. N. Am. 1858, 750.—BAIRD, Cat. N. Am. B. 1859, No. 557.—COUES, Key, 1872, 274; Check List, 1873, No. 469; 2d ed. 1882, No. 680; Birds N. W. 1874, 539.—RIDGW. Nom. N. Am. B. 1881, No. 575; Man. N. Am. B. 1887, 140.— A. O. U. Check List, 1886, No. 215.

"*Porzana jamaicensis* (?)" (error) RIDGW. Orn. 40th Par. Exp. 1877, 613 (Nevada and Utah).[1]

HAB. Eastern North America, north to Hudson's Bay, Nova Scotia, west to Utah and Nevada. No extralimital record except Cuba and the Bermudas.

SP. CHAR. *Adult.* Yellowish ochraceous, very glossy above, where broadly striped with black, the black intersected by narrow bars of white; belly whitish; flanks dusky narrowly barred with white; crissum light cinnamon; axillars, lining of wing, and exposed portion of secondaries, white. "Bill greenish black, with the base dull yellowish orange; iris hazel; feet and claws light flesh-color" (AUDUBON). Total length about 6.00 inches; wing 3.00–3.50; culmen, .50–.55; tarsus, .90–1.00; middle toe, .90.

There is considerable individual variation, both in size and markings, even among specimens from the same locality.

Although very rarely seen, on account of its skulking habits and extreme reluctance to take wing, the little Yellow Rail is not an uncommon bird in Illinois. Mr. Nelson gives it as "not very rare" in Cook county, where it arrives early in May. Several specimens, he says, are taken each spring, before the grass becomes sufficiently high to effectually conceal them. The National Museum possesses its eggs from Winnebago, taken by Mr. J. W. Tolman, thus proving that it breeds in the northern part of the State.

[1] The small Rail referred by me, with great hesitation, to *P. jamaicensis*, in my "Report of the Ornithology of the Fortieth Parallel Expedition" (Vol. IV., Pt. iii, p. 613), was undoubtedly this species, which is the only one showing white along the hinder margin of the wing—a peculiarity noted of the birds observed. The apparently "blackish color" was due to imperfect observation.

Porzana jamaicensis (Gmel.)

BLACK RAIL.

Popular synonym. Little Black Rail.

Rallus jamaicensis GMEL S. N. i, pt. ii, 1788, 718—AUD. Orn. Biog. iv, 1838, 359, pl. 349.
Ortygometra jamaicensis "STEPHENS, Shaw's Gen. Zoöl."—AUD. Synop. 1839, 214; B. Am. v, 1842, 157, pl. 308.
Porzana jamaicensis CASS. in Baird's B. N. Am. 1858,749.—BAIRD, Cat. N. Am. B. 1859, No. 556.—COUES, Key, 1872, 247; Check List, 1873, No. 470; 2d ed. 1882, No. 681; Birds N. W. 1874, 539.—RIDGW. Nom. N. Am. B. 1881, No. 576; Man. N. Am. B. 1887, 140.—A. O. U. Check List, 1886, No. 216.

HAB. Temperate North America, north to Massachusetts, northern Illinois (breeding), Utah, Nevada, and California; south through western South America to Chili; Cuba; Jamaica; Bermudas.

SP. CHAR. Smaller than *P. noveboracensis*, and the smallest of North American Rallidæ. *Adult:* Head, neck, and lower parts dark plumbeous or slate-color, darkest, and often nearly black, on the pileum; abdomen and crissum brownish black, marked with transverse bars of white; nape and back dark chestnut or reddish sepia-brown, the other upper parts brownish black, with small dots and irregular transverse bars of white; primaries immaculate dusky, or with small spots of white. *Young:* Similar, but lower parts dull ashy, the throat inclining to white, and the crown tinged with reddish brown. *Downy young:* "Entirely bluish black" (CASSIN). Bill black; iris red; "feet bright yellowish green" (AUDUBON[1]). Total length, about 5.00 inches; wing 2.50–3.20; culmen, .50–.60; tarsus, 85–.90; middle toe, 80–1.00.

Like its relative, the Yellow Rail, the present species is much more numerous than one not familiar with its habits would suppose. Mr. Nelson's memoranda concerning it (*Bull. Essex Inst.*, VIII., 1876, pp. 134, 135) are as follows:

"Like the preceding, of not very rare occurence. Breeds. During the spring of 1875 I saw three specimens in the Calumet Marshes. The first was observed early in May. On the 19th of June, the same season, while collecting with me near the Calumet River, Mr. Frank DeWitt, of Chicago, was fortunate enough to discover a nest of this species containing ten freshly laid eggs. The nest was placed in a deep cup-shaped depression in a perfectly open situation on the border of a marshy spot, and its only concealment was such as a few straggling *carices* afforded. It is composed of soft grass blades loosely interwoven in a circular manner. The nest, in shape and construction, looks much like that of a meadow lark. The following are its dimensions in inches: Inside depth, 2.50; inside diameter, 3.25; outside depth, 3.50; outside diameter, 4.50. The eggs are a cream-white

[1] In an adult male, killed June 6, 1879, near Washington, D. C., the fresh colors of the "soft parts" were as follows: Bill entirely deep black; iris bright brick-red; legs and feet brown, much the same color as the wing-coverts.

instead of clear white, as I stated in a recent article (*Bull. Nutt. Orn. Club*, Vol. I., p. 43), and average 1.00 by .81 inches. They are nearly perfectly oval, and are thinly sprinkled with fine reddish-brown dots, which become larger and more numerous at one end. Minute shell markings in the form of dots are also visible. Owing to the small diameter of the nest, the eggs were in two layers."

Family **GRUIDÆ**.—The Cranes.

The diagnosis of this family has already been given on page 82. The species are all of very large size, and inhabit grassy plains, as well as marshes. The bill is moderately long; the nostrils broad and pervious, the nasal groove extending but little beyond them. The legs are long, but the toes are short; the hind toe is very short and much elevated, the claw scarcely touching the ground.

The genera are few in number, but one, *Grus*, belonging to North America.

Genus **GRUS** Pallas.

Grus Pall. Misc. Zool. 1766, 66. Type, *Ardea grus* Linn.

Char. Bill lengthened, straight, the upper mandible only slightly decurved at the extreme tip; the commissure and other outlines straight. Nasal groove very large and open, extending over the basal two thirds of the bill. Nostrils broadly open, pervious; the anterior extremity half way from the tip of bill to eye. The upper half of the head naked, warty, but with short hairs.

Legs much lengthened; toes short, hardly more than one third the tarsus. Inner toe rather longer, its claw much larger than the outer. Hind toe elevated, short. Toes connected at base by membrane. Tarsi broadly scutellate anteriorly. Tertials longer than primaries, decurved; first quill not much shorter than second. Tail of twelve feathers.

Synopsis of Species.

A. Adult plumage white, the primaries black; cheeks naked. Bill very thick, the gonys strongly convex.

1. **G. americana.**

B. Adult plumage grayish or plumbeous, the primaries slate-color; cheeks always feathered. Bill slender, longer than middle toe; gonys straight.

2. **G. canadensis.** Wing, 17.75–19.00 inches; culmen, 2.90–3.70; tarsus, 6.70–8.00; middle toe 2.80–2.95. *Hab.* Alaska to New Mexico and Texas, breeding (exclusively?) far northward.

3. **G. mexicana.** Wing, 22.00 inches; culmen, 5.00–6.00; tarsus, 10.00; middle toe, 3.50 or more. *Hab.* Western United States and Gulf States from Washington to Florida.

Grus americana (Linn.)

WHOOPING CRANE.

Popular synonym. Great White Crane.

Ardea americana Linn. S. N. ed. 12, i, 1766, 234.—Wils. Am. Orn. viii, 1814, 20, pl. 64, fig. 3.

Grus americana Sw. & Rich. F. B.-A. ii, 1831, 372.—Nutt. Man. 1834, 34.—Aud. Orn. Biog. iii, 1835, 202, pl. 226; Synop. 1839, 219; B. Am. v, 1842, 188, pl. 313.—Baird, B. N. Am. 1858, 654; Cat. N. Am. B. 1859, No. 478.—Coues, Key, 1872, 271; Check List, 1873, No. 462; ed. 2, 1882, No. 668; Birds N. W. 1874, 530. Ridgw. Nom. N. Am. B. 1881, No. 582; Man. N. Am. B. 1881, No. 582.—A. O. U. Check List, 1886, No. 204.

Grus hoyanus, Dudley, Proc. Acad. Nat. Sci. Phila. vii, 1854. 64 (young).—Stimpson, Mem. Chicago Acad. i, 1868, 129, pl. 19.

Hab. The interior of North America from Texas and Florida to the Fur Countries, and from Colorado to Ohio; south to Guanajuato, Central Mexico?[1] Formerly found, casually, in the Atlantic States.

Sp. Char. *Adult:* Whole crown and occiput covered by a warty or granulated skin almost bare on the occiput, but covered anteriorly by black hair-like bristles; the color of this skin reddish in life. Lores and malar region, including a narrow angular strip extending from the latter down each side of the throat, also naked, and similarly bristled, the bristles denser anteriorly. Color entirely pure white, excepting the primaries and their coverts, which are uniform slate-black, and a patch of plumbeous on the upper part of the nape, adjoining the bare skin of the occiput and extending downward for the distance of about two inches. "Bill wax-yellow; iris gamboge-yellow; bare skin of head dull orange-color; legs blue-black." (Sw. & Rich. l. c.) *Young:* Head completely feathered. General color white, with large patches here and there, especially above, of light cinnamon, the head and neck almost continuously of this color. The primaries and their coverts uniform dull black, as in the adult. Bill dull wax-yellow, the terminal portion blackish; legs and feet blackish. *Immature:* Bare portions of the head indicated by feathers of a harsher texture and darker color than elsewhere, occupying the areas which are naked in the fully adult. Plumage much stained with pale cinnamon, as in the first plumage.

Total length, about 52.00 inches; extent, 92.00; wing, 24.00; culmen, 5.35; tarsus, 12.00; middle toe, 4.25.

Once an abundant migrant, and in some localities a common summer resident, this grand bird is now rare in most parts of the State, and is becoming yearly more so. Mr. Nelson remarks of it: "Along the Illinois River and more thinly settled portions of the State it is still common during the migrations, and a few pairs breed upon the large marshes in central Illinois."

Grus mexicana (Müll.)

SAND HILL CRANE.

Popular synonym. Brown Crane.

Ardea (grus) mexicana Müll. S. N. Suppl. 1776, 110 (*ex* Briss. Orn. v, 380).

Grus canadensis, β. mexicana B. B. & R. Water B. N. Am. i, 1884, 407.

Grus mexicana Ridgw. Proc. U. S. Nat. Mus. viii, 1885, 356; Man. N. Am. B. 1887, 135.—A. O. U. Check List, 1886, No. 206.

[1] *Fide* Professor A. Dugès, in epist.

Ardea canadensis, var. β. LATH. Ind. Orn. ii, 1790, 676 (Mexico).
Grus pratensis BARTR. Travels, 1791, 144, 218.—COUES, Check List, 2d ed. 1882, No. 670.
Grus fusca (part) VIEILL. Nouv. Dict. xiii, 1817, 558.
Grus canadensis NUTT. Man. ii, 1834, 38 (*nec Ardea canadensis* LINN.).—BAIRD, B. N. Am. 1858, 655; Cat. N. Am. B. 1859, No. 479.—COUES, Key, 1872, 271; Check List, 1873, No. 463; B. N. W. 1874, 532.—HENSH. Zoöl. Wheeler's Exp. 1875, 467.—RIDGW. Orn. 40th Par. 1877, 611; Nom. N. Am. B. 1881, No. 583.
Grus americana (supposed young) AUD. Orn. Biog. iii, 1835, 441, pl. 261; Synop. 1839, 219; B. Am. v, 1842, 188, pl. 314.

HAB. Southern half of North America, but now very rare along Atlantic coast north of Georgia; south to central Mexico; breeding in Florida and Cuba, and from the States immediately west of the Mississippi River to the Pacific coast; winters in the Gulf States and in Mexico.

SP. CHAR. *Adult:* Entire pileum, including lores, covered with a bare, granulated skin (reddish in life), interspersed with scattered fine blackish hairs; the posterior margin of this bare skin divided medially, on the occiput, by an angular projection of the feathers on the upper part of the nape. General color of the plumage continuous and nearly uniform slaty gray, this frequently stained or overlaid in places by a rusty wash, the primaries slate-colored, with whitish shafts. Cheeks and throat sometimes distinctly whitish. Legs and feet blackish; bill blackish, paler at tip; iris crimson? *Young:* Head entirely feathered. Plumage much as in the adult, but of a lighter and more brownish gray, and always conspicuously stained, especially on upper parts, with tawny-cinnamon or rusty.

Sandhill Cranes usually arrive in Illinois on their way northward during the latter half of March, and return in October or November. Formerly, large numbers remained within the State to breed, but so thickly has the country become settled, that those which now do so are very few indeed—at least in comparison with former years. As long ago as 1876, Mr. Nelson stated that, while formerly nesting abundantly on all the large marshes, but few then bred except on one or two large marshes in the central part of the State, where he was informed they were "still quite numerous". Just where the large marshes in question are located, Mr. Nelson has not told us.

During their migrations they pass high in the air, often beyond the limits of sight, but making their presence known by their sonorous, rattling, trumpet-like notes, which have been aptly compared to the sound "made by the blocks and ropes when hoisting sail on a vessel".

Unlike the Great Blue Heron, which usually passes under the name of "crane" or "blue crane," the Sandhill Crane feeds more in meadows, prairies, and plowed fields than in marshes, and its food, instead of being chiefly frogs, crayfish, and fishes, consists largely of field-mice and other small mammals, grasshoppers, succulent roots, seeds, etc., potatoes, and especially sweet

potatoes, being greatly relished. In fact, it is practically omnivorous; and when domesticated will devour almost anything eatable that is presented to it. Like the heron, however, it is extremely wary, and cautious indeed must be the hunter who approaches within gunshot.

The nest of the Sandhill Crane is placed on the ground among vegetation, which conceals it, sometimes in a marsh, but often on dry spots. The eggs are usually two in number, their average size being about 3.98 by 2.44 inches, and their color some shade of pale olive-brown, or drab, spotted with darker brown, reddish brown, and purplish gray. The young are at first covered with a soft dense down, bright rusty on the upper parts and pale grayish on the lower, and are said to be unable to fly until they become nearly as large at their parents, whom they follow about until able to take wing, before which time they elude pursuit by swiftly running and then hiding among the grass and weeds. Taken when quite small, they are very easily domesticated and become most amusing pets; but are somewhat dangerous on account of their propensity to use their sharp bills, thus endangering the eyesight of persons who allow them to become too familiar.

Order HERODIONES.—The Herons, Storks, Ibises, etc.

Characters. Altricial ptilopædic Grallatores, with the hallux lengthened and nearly or quite incumbent; palate desmognathous; carotids double; habits more or less arboreal.

The Order *Herodiones* includes several distinct groups, which may be defined as follows:

a^1. Sides of upper mandible with a deep narrow groove extending uninterruptedly from the nostrils to the tip.....Suborder Ibides.

a^2. Sides of upper mandible without any groove.

b^1. Hind toe inserted above the level of the anterior toes; claws broad and flat, resting on a heavy pad or shoe, the middle one not pectinated.

Suborder Ciconiæ.

b^2. Hind toe inserted on the same level as the anterior toes; claws narrow, arched, the under surface free, and the middle one with its inner edge pectinated.....Suborder Herodii.

Suborder IBIDES.—The Spoonbills and Ibises.

Families.

a^1. Bill very broad and excessively flattened, greatly widened toward end, only the extreme tip decurved.....Plataleidæ.

a^2. Bill slender, nearly cylindrical, or even narrower than deep toward end, gradually but decidedly decurved for nearly whole length.....Ibididæ.

Family PLATALEIDÆ.—The Spoonbills.

Char. Large-sized Ibis-like birds, with the bill greatly flattened and expanded terminally. Bill deep through the base (the culmen ascending), but immediately flattened; narrowest across the middle portion, the end widely expanded, the tip rounded and decurved. Nostrils superior, longitudinal, without surrounding or overhanging membrane; nasal fossæ prolonged forward in a narrow, continuous groove to the extreme tip of the bill (as in the Ibises), its course nearly (or in some genera quite) parallel with the lateral outline of the maxilla; approximate surfaces of maxilla and mandible with one or two rows of more or less prominent tooth-like papillæ along each side. Tarsus longer than middle toe, and with small longitudinal hexagonal scales in front; outer toe decidedly longer than inner, its claw reaching to the base of the middle claw; hallux nearly incumbent, about equal to the basal phalanx of the inner toe; bare portion of tibia longer than outer toe; web between inner and middle toes well developed. Wings ample, reaching about to the end of the tail, the primaries a little longer than the tertials. Tail short, even, of twelve stiff, broad, round-ended feathers.

The Spoonbills are closely related to the Ibises, but differ conspicuously in the flattened, paddle-shaped bill, as well as in some other minor characters. They belong chiefly to the eastern hemisphere, where six or seven species, representing three genera, occur, the western hemisphere possessing but a single species, of different generic type from those of the Old World.

Genus AJAJA Reichenbach.

Ajaja Reichenb. Handb. 1851, xvi. Type, *Platalea ajaja* Linn.

Gen. Char. Bill much expanded and excessively depressed terminally, the tip decurved, much broader than deep at the base, the middle portion contracted to considerably less than one half the width of the terminal "disk." Nostrils sub-basal, superior, near together, longitudinal, and without adjacent membrane. Head completely bald in the adult (feathered almost to the bill in the young). Legs comparatively short, the tarsus but little longer than the middle toe, covered in front, as well as all round, with small, longitudinal, hexagonal scales. Plumage of the neck short, downy.[1]

[1] A special modification of the trachea further distinguishes the genus *Ajaja* from *Platalea*, according to Professor Garrod (P. Z. S. 1875, p. 299, fig. 2), who describes this organ as "simple, straight, of uniform calibre, and peculiarly short, extending only two thirds the neck, where the uncomplicated syrinx is situated, and the bifurcation of the bronchi occurs." In *Platalea*, on the other hand, the trachea is "convoluted within the thorax," etc. (See Yarrell, *Hist. Brit. B.* vol. ii, p. 504.)

Ajaja ajaja (Linn.)

ROSEATE SPOONBILL.

Popular synonym. Pink Curlew (Florida).

Platalea ajaja LINN. S. N. ed. 10, 1758, 140 (ex SLOANE, B. Jam. ii, 316; MARCGR.; RAY); ed. 12, i, 1766, 231.—WILS. Am. Orn. vii, 1813, 123, pl. 62 (immature).—NUTT. Man. ii, 1834, 79.—AUD. Orn. Biog. iv, 1838, 188; B. Am. vi, 1843, 72, pl. 362 (adult).—CASS. in Baird's B. N. Am. 1858, 686.—BAIRD, Cat. N. Am. B. 1859, No. 501.—COUES, Key, 1872, 264; Check List, 1873, No. 448.

Ajaja ajaja BOUC. Cat. Av. 1876, 54.—A. O. U. Check List, 1886, No. 183.—RIDGW. Man. N. Am. B. 1887, 123.

Platea mexicana ("WILLOUGHBY") GAMB. Jour. Acad. Nat. Sci. Phila. Ser. 2, i, 1849, 222 ("San Francisco").

Ajaja rosea (*ex Platea rosea* BRISS.) REICH. "Nat. Syst. 16".—RIDGW. Nom. N. Am. B. 1881, No. 505.—COUES, 2d Check List, 1882, No. 653.—B. B. & R. Water B. N. Am. i, 1884, 102.

HAB. Whole of tropical and subtropical America; north regularly to Gulf coast of the United States; formerly ranging northward in Mississippi Valley to southern Illinois.

SP. CHAR. *Adult:* Head entirely bare. Neck, back, and breast, white; tail orange-buff, the shafts of the feathers deep pink, the inner webs inclining to pale pink. Rest of the plumage pale rose-pink, the lesser wing-coverts' region, and upper and lower tail-coverts, brilliant, intense carmine. Chest with a tuft of light carmine, somewhat twisted, or curled, narrow plumes. Sides of the breast, at base of the wings (concealed by the latter), pale creamy buff. "Bill yellowish gray at the base, mottled with brownish black, in the rest of its extent pale greenish blue, light on the margins; base of margin of lower mandible greenish yellow; iris bright carmine; feet pale lake; claws brownish black; head yellowish green; space around the eye and the gular sac orpiment-orange; a band of black from the lower mandible to the occiput" (AUDUBON). *Immature:* Like the adult, but lacking the brilliant carmine of the lesser wing-coverts' region, tail-coverts, etc., these portions being pale peach-blossom pink. Tail delicate peach-blossom pink, instead of orange-buff. Nuchal and pectoral colored tufts absent. *Young:* Head completely feathered, except immediately around the base of the bill. Head, neck, back, and anterior lower parts white, in some specimens more or less tinged, especially above, with orange-buff;[1] wings, tail, and posterior part of the body delicate pale peach-blossom pink, the shafts of the remiges and rectrices deeper pink. Outer webs of alulæ, outer primary-coverts, and wide borders to outer primaries (principally on outer webs), clear snuff-brown.

[NOTE. We have not seen the young in down, nor when first feathered. The latter is described by Audubon as follows: "The young, . . . when able to fly, . . . are grayish white. The bill is then quite smooth, of a yellowish green color, as are the legs and feet, as well as the skin on part of the head. Young birds in their second year have the wings and the lower wing-coverts of a pale roseate tint, the bill more richly colored, and the legs and feet dark brownish red or purplish. At this age they are unadorned with the curling feathers on the breast; but in the third spring the bird is perfect, although it increases in size for several seasons after."]

Length, about 28.00–35.00 inches; expanse of wings, 48.00–53.00; wing, 14.10–15.30; tail, 4.20–5.20; culmen, 6.20–7.15; width of bill, 2.00–2.20; tarsus, 3.75–4.65; middle toe, 2.95–3.35; bare portion of tibia, 2.80–3.20.

Although, like the Carolina Parrakeet and Ivory-billed Woodpecker, the Roseate Spoonbill may not now be found in Illinois, I was informed, in 1879, by a taxidermist[2] whom I have every

[1] *Qu.* An accidental stain?

[2] Mr. Alexander Wolle, Sr., of Baltimore, Md. (See *Bull. Nutt. Orn. Club*, v, Jan. 1880, p. 31.)

reason to believe reliable, that some twenty years previously, or about 1859, he shot several specimens about some ponds in the Mississippi Bottoms, below St. Louis. More recently, I have received a letter from Mr. R. E. Kirkman, of Richmond, Indiana, giving the information that a specimen was shot in Jay Co., that state, July 14th, 1889.

"According to Audubon the Roseate Spoonbill is to be met with, for the most part, along the marshy or muddy borders of estuaries, the mouths of rivers, on sea islands, or keys partially overgrown with bushes, and still more abundantly along the shores of the salt-water bayous so common within a mile or two of the shore. There it can reside and breed, with almost complete security, in the midst of an abundance of food. It is said to be gregarious at all seasons, and that seldom less than half a dozen may be seen together, unless they have been dispersed by a tempest, At the approach of the breeding-season these small flocks collect together, forming immense collections, after the manner of the Ibis, and resort to their former breeding-places, to which they almost invariably return. Their moult takes place late in May; during this time the young of the previous year conceal themselves among the mangroves, there spending the day, and returning at night to their feeding-grounds, but keeping apart from the old birds, which last have passed through their spring moult early in March. Like the several species of Ibis, this bird is said occasionally to rise suddenly on the wing, and ascend gradually, in a spiral manner, to a great height. It flies with its neck stretched forward to its full length, and its legs and feet extended behind. It moves in the manner of a Heron, with easy flappings, until just as it is about to alight, when it sails over the spot with expanded wing, and comes gradually to the ground. It flies in a confused manner, except when on one of its extended movements.

"It is usually found in the company of different Herons, whose vigilance apprises it of any danger. It can usually be approached, when feeding, with proper care. When one is wounded in the wing it usually makes for deep water, and swims for some distance without attempting to dive. If the wing is uninjured, this bird, even though mortally wounded, will fly until it drops dead. It is as nocturnal as the Night Heron, and its

principal feeding time is from near sunset until daylight. In procuring its food the Spoonbill usually wades up to the tibæ, immerses its bill in the soft mud, with the head, and even the whole neck, beneath the surface, moving its partially opened mandibles to and fro laterally, munching the small fry—insects or shell-fish—before it swallows them. Where many are together, one usually acts as a sentinel. He did not see it feeding in fresh water, though he was told that it does so occasionally.

"It can alight on a tree and walk on the large branches with all the facility of a Heron." (*Water Birds of North America*, Vol. I., pp. 105, 106.

FAMILY IBIDIDÆ.—THE IBISES.

CHAR. Wading birds of medium to rather large size, the bill much elongated, more or less attenuated toward the end, and bent downward, more or less decidedly, in sickle-fashion, like that of the Curlews (*Numenius*). Nostrils sub-basal, latero-superior, with more or less of a membrane above and behind; nasal fossæ continued forward to the very extremity of the maxilla in the form of a deep, narrow, continuous groove. Hallux almost incumbent; claws slender, projecting far beyond the ends of the toes.

The true Ibises form an eminently natural group of wading birds, distinguished from their nearest allies by the above characters. The species are moderately numerous (about twenty-six being known), and are dispersed over the warmer regions of the the earth—America possessing a larger number than any other country (ten species, all but one of which are peculiar, or more than one third of those known). Of the exotic species, Africa possesses about nine (two of them in common with southern Europe), Asia five, and Australia two. A very great diversity of form and plumage is to be seen among the various species, some being trim and graceful in their build, and others uncouth, with Vulture-like head and neck—some plain in colors, while others are among the most brilliant of birds. The scarlet plumage of *Guara rubra* is not surpassed in nature for pureness and intensity of color, and the beautiful decomposed tertial plumes of *Ibis æthiopica* are scarcely excelled in gracefulness. The species of *Molybdophanes*, *Theristicus*, and *Cercibis*, however, possess but little beauty.

The family is divisible into two well-defined sections, which may be termed subfamilies, distinguished mainly by the character of the tarsal scutellation. They may be defined as follows:

Subfamily Ibidinæ. Front of the tarsus covered with hexagonal scales.

Subfamily Guarinæ. Front of the tarsus with large transverse scutellæ, arranged in a more or less continuous single series.

Both of the above subfamilies are represented in America, but only the latter in the northern continent. The North American genera may be recognized by the following characters:

Subfamily GUARINÆ.

Guara. Head of adult wholly naked anteriorly. Feathers of the pileum short, close, and blended, and those of the neck not distinctly lanceolate. Colors plain white or red, with black wing-tips, in adults; dull gray and white in young.

Plegadis. Head of adult wholly feathered, except the lores; feathers of the pileum distinctly lanceolate and slightly elongated, forming a slightly rounded crest when erected. Colors highly metallic, of varied tints; metallic greenish, bronze or purple above; neck and under parts chestnut in adults; neck streaked with white and under parts grayish brown in young.

Genus GUARA Reichenbach.

Eudocimus Wagl. Isis, 1832, 1232 (*nec Eudocima* Billberg, 1820). Type, *Scolopax rubra* Linn.

Guara Reich. Syst. Av. 1852, p. xiv. Type, *Scolopax rubra* Linn.

Leucibis Reich. Syst. Av. 1852, p. xiv. Type, *Scolopax alba* Linn.

Gen. Char. Bill moderately slender, attenuated toward the end, strongly decurved; bare portion of the tibia equal to or rather shorter than the outer toe; middle toe, with claw, shorter than the tarsus; inner toe (without claw) reaching to or a little beyond the subterminal articulation of the middle toe; outer toe reaching to or beyond the middle of the subterminal phalanx of the middle toe; hallux about equal to the basal phalanx of the inner toe; claws short, moderately curved, that of the middle toe more or less bent outwardly toward the tip, its inner projecting edge convex. Anterior half of the head bare (in the adult) including the forehead, lores, orbital and malar regions, chin, and more or less of the throat; in the young, this bare skin more restricted. Feathers of the head and neck dense but rather soft, with rather distinct outlines, but with somewhat truncated tips. Primaries extending a little beyond the tertials, the second and third quills longest and nearly equal, first a little shorter than the fourth; inner webs of outer four slightly sinuated toward their ends. *Adults* with the plumage entirely uniform white or scarlet, except tips of the longer quills, which are glossy black. *Young*, uniform dark brownish gray, the belly white.

Species.

a^1. *Adult*, pure intense scarlet, the tips of the longer primaries glossy blue-black. *Young*, dark brownish gray, with belly white ..... G. rubra.

a^2. *Adult*, pure white (sometimes tinged with pink in the breeding season or in freshly killed specimens), the tips of longer primaries glossy greenish black. *Young*, grayish brown, the rump, tail-coverts, base of tail, and under parts white..... G. alba.

Both the Scarlet and the White Ibises are peculiar to the warmer parts of America. They are in a measure complementary to one another in their distribution, for, while their respective ranges overlap in Central America the former is found chiefly in the northern parts of South America and the latter in the more southern United States and in Mexico. So similar are these species in size, proportions, and pattern of coloration, and to a cer-

tain extent in color also, that the question has been raised,[1] whether they are not really offshoots from a common ancestral stock, which, like a species of eastern Asia (*Ibis nippon*) and certain herons, was at one time "dichromatic."

Guara alba (Linn.)

WHITE IBIS.

Popular synonyms. White Curlew; Spanish Curlew (Florida); Gray Ibis, Brown Ibis (young); Coco (Cuba); Ibis blanco (Mexico).

Scolopax alba LINN. S. N. i, ed. 10, 1758, 145.
Tantalus albus GMEL. S. N. i, 1788, 651.—WILS. Am. Orn. viii, 1814, 43, pl. 66.
Ibis alba VIEILL. Nouv. Dict. xvi, 1817, 16.—NUTT. Man. ii, 1834, 86.—AUD. Orn. Biog. iii, 1835, 178; v, 1839, 593, pl. 222; Synop. 1839, 257; B. Am. vi, 1843, 54, pl. 360.—CASS. in Baird's B. N. Am. 1858, 684.—BAIRD, Cat. N. Am. B. 1859, No. 499.—COUES, Check List, 1873, No. 446.
Eudocimus albus WAGL. Isis, 1832, 1232.—RIDGW. Nom. N. Am. B. 1881, No. 501.—COUES, Check List, 2d ed. 1882, No. 651.
Guara alba STEJN. Stand. Nat. Hist. iv, 1885, 9.—A. O. U. Check List, 1886, No. 184.—RIDGW. Man. N. Am. B. 13, 1887, 123.
Tantalus alber LINN. S. N. i, 1766. 242.
Tantalus coco JACQ. Beitr. 1784, 13.
Tantalus griseus GMEL. S. N. i, 1788, 653 (young).
Eudocimus longirostris WAGL. Isis, 1829, 760.

HAB. Warm-temperate eastern North America, West Indies, Middle America, and tropical South America; north to Connecticut, eastern Pennsylvania, Illinois, and Great Salt Lake, Utah; south to Brazil.

SP. CHAR. *Adult:* Terminal portion (beyond the emargination) of three to five[2] outer primaries, glossy greenish black, with a bright metallic green lustre. Rest of the plumage entirely pure white. Bill, bare skin of the head, legs and feet, bright carmine in the breeding season; at other times paler, or orange-red; iris fine pearly blue (AUDUBON).[3] End of

[1] See *The Auk*, vol. i, 1884, pp. 239, 240.

[2] According to Audubon, "There is a curious, though not altogether general, difference between the sexes of this species as to plumage,—the male has five of its primaries tipped with glossy black for several inches, while the female, which is very little smaller than the male, has only four marked in this manner. On examining more than a hundred individuals of each sex, I found only four exceptions, which occurred in females that were very old birds, and which, as happens in some other species, might perhaps have been undergoing the curious change exhibited by Ducks, Pheasants, and some other birds, the females of which, when old, sometimes assume the livery of the males." This supposed sexual difference we have been unable to verify with the series before us, though it is very possible that some specimens may not have the sex correctly determined.

[3] "Bare parts of the head [in the adult male] light orange-red; bill the same, but towards the tip dusky. Iris of a fine pearly blue. Legs and toes paler than the bill; claws dusky, tipped with horn color.

"After the first moult, the bill is pale yellowish orange, toward the base greenish; the naked parts of the head are pale orange yellow, inclining to flesh-color; the eye dark brown; the feet pale blue.

"The change in the coloring of the bill, legs, and feet of this bird, that takes place in the breeding season, is worthy of remark, the bill being then of a deep orange-red, and the legs and feet of a red nearly amounting to carmine. The males at this season have the gular pouch of a rich orange color, and somewhat resembling in shape that of the Frigate Pelican, although proportionally less. During winter these parts are of a dull flesh color. The irides also lose much of their clear blue, and resume in some degree the umber color of the young birds. I am thus particular in these matters, because it is doubtful if any one else has ever paid attention to them." (AUDUBON.)

—B.

the bill sometimes blackish. *Young:* Uniform, rather dark, grayish brown, the rump, upper tail-coverts, basal half of tail, and entire lower parts, including axillars and lining of the wing, continuous white; head and neck streaked with dusky or grayish brown on a grayish or dull whitish ground-color. Feathering of the head extending forward almost to the bill.

Length, about 24.00–26.00; expanse, about 40.00; wing, 10.30–11.75; tail, 4.00–5.00; culmen, 4.15–6.30; depth of bill, .60–.72; tarsus, 3.10–4.00; middle toe, 2.15–2.70; bare portion of tibia, 2.00–2.80.

Downy young. "The young birds are at first covered with a thick down of a dark gray color." (AUDUBON.)

Immature specimens show, according to age, all possible stages of plumage intermediate between the pure white adult and gray young.

I have very little information respecting the White Ibis in Illinois, having observed it but once, a flock of seven or eight examples, all in the gray plumage, having been seen by Mr. William Brewster and myself about the 8th of May, 1878, flying along the Wabash River, at Mt. Carmel.

GENUS PLEGADIS KAUP.

"*Falcinellus* BECHST." AUCT. (nec BECHSTEIN).
Plegadis KAUP, Skizz. Entw. Gesch. 1829, 82. Type, *Tantalus falcinellus* LINN.
Tantalides WAGL. Isis, 1832, 1231. Type, *Tantalus falcinellus* LINN.

GEN. CHAR. Bill shallow through the base, moderately tapering, and gently curved; the base not turgid, and the basal outline of the maxilla deeply concave; bare portion of tibia equal to or longer than outer toe; middle toe about three fourths the tarsus; inner toe reaching past the subterminal articulation of the middle toe; hallux about equal to the basal phalanx of the inner toe. Forehead and orbital, malar, and gular regions completely feathered, the lores and interramal space only being naked, the feathering on the chin forming an acute angle which advances to as far as the middle of the nostrils; feathers of the pileum elongated, lanceolate, and distinct, forming, when erected, a sort of full, rounded crest; those of the occiput and nape, and upper half of the neck all round, also distinct and lanceolate. Plumage chiefly metallic green above; the adults with head and upper part of neck chestnut, and lower parts chestnut (*autumnalis* and *guarauna*) or violet-blackish (*ridgwayi*); the young with head and upper part of neck streaked grayish brown and white, the lower parts grayish brown (*autumnalis* and *guarauna*) or violet-dusky (*ridgwayi*).

This genus differs conspicuously from *Guara* in the complete feathering of the head (excepting only the lores and the space between the mandibular rami) and in the brilliantly metallic plumage.

There are two species in North America, one, *P. autumnalis*, inhabiting the eastern portion, and identical, apparently, with the Old World species, the other, *P. guarauna*, replacing it in the western parts of the United States and southward through

Mexico and Central America and over the greater part of South America. A third species, *P. ridgwayi* (ALLEN [1]) inhabits the highlands of Peru.

The two North American species are almost exactly alike in plumage, and probably cannot be distinguished with certainty in the immature stage. When fully adult, however, they may readily be recognized by the following characters:

a^1. Feathers around base of bill blackish; lores greenish in life, and bill and legs greenish, or at least not red.....**P. autumnalis.**
a^2. Feathers around base of bill white; lores lake-red in life; bill more or less reddish, and legs lake-red.....**P. guarauna**[2].

P. guarauna very likely occurs occasionally in Illinois, having been taken in Nebraska, Kansas, and other States immediately west of the Missouri River; but so far as I know it has not been detected within our limits.

Plegadis autumnalis (Hasselq.)

GLOSSY IBIS.

Popular synonyms. Bay Ibis; Green Ibis (young); Black Curlew.

Tringa autumnalis HASSELQ. Reise nach Palästina, Deutsche Ausg. 1762, 306.
Plegadis autumnalis STEJN. Stand. Nat. Hist. iv, 1885, 160.—A. O. U. Check List, 1886, No. 186.—RIDGW. Man. N. Am. B. 1887, 124.
Tantalus falcinellus LINN. S. N. ed. 12, i, 1766, 241.
Ibis falcincellus VIEILL. N. D. xiv, 1817, 23.—BONAP. Obs. WILS. 1825, No. 190.—NUTT. Man. ii, 1834, 88.—AUD. Orn. Biog. iv, 1838, 608, pl. 387; Synop. 1839, 257; B. Am. vi, 1843, 50, pl. 358 (adult).
Plegadis falcinellus "KAUP." FRITSCH, Vög. Eur. 1869, Taf. 43, fig. 3, p. 378.—RIDGW. Nom. N. Am. B. 1881, No. 503.—COUES, 2d Check List, 1882, No. 649.—B. B. & R. Water B. N. Am. i, 1884, 94.
Tantalus castaneus MÜLL. S. N. Suppl. 1766, 112 (adult).
Tantalus viridis GMEL. S. N. i, 1788, 648 (young).
Tantalus igneus GMEL. S. N. i, 1788, 649 (adult).
Falcinellus igneus GRAY, Gen. B. ed. 2, 1841, 87.—ELLIOT, P. Z. S. 1877, 503.
Tantalus mexicanus (*nec* GMEL.) ORD., Journ. Acad. Nat. Sci. Phila. i, 1817, 52.
Ibis ordii BONAP. Comp. List, 1838, 49.—CASS. in Baird's B. N. Am. 1858, 635 (part).—BAIRD, Cat. N. Am. 1859, No. 500.
Ibis falcinellus, var. *ordii* COUES, Key, 1872, 263; Check List, 1873, No. 445; B. N. W. 1874, 517.

[1] *Falcinellus ridgwayi* ALLEN, Bull. Mus. Comp. Zoöl. iii, July, 1876, 355 (vicinity of Lake Titicaca, Peru).—*Plegadis ridgwayi* B. B. & R. Water B. N. Am. i, 1884, 94.

[2] *Scolopax guarauna* LINN. S. N. ed. 12, i, 1766, 242.—*Plegadis guarauna* RIDGW. Proc. U. S. Nat. Mus. i, Oct. 2, 1878, 163.

Ibis guarauna (*nec* LINN.) CABOT, Proc. Bost. Soc. ii, 1850, 313, 332.
Numenius longirostris (*nec* WILS.) GOSSE, B. Jam. 1847, 348.
Tantalus bengalensis "LICHT." BONAP. Consp. ii, 1855, 158.
Ibis peregrina "MÜLL." BONAP. Consp. ii, 1855, 159.

HAB. Warmer parts of the eastern hemisphere; West Indies, and eastern United States. Of irregular distribution and only locally abundant in America.

SP. CHAR. *Adult.* Feathers bordering the base of the bill all round, blackish. Pileum, cheeks, and chin glossy greenish black, with purplish reflections. Hinder part of head, whole neck, anterior portion of back, and anterior half of lesser wing-covert tract rich reddish chestnut, darkest on back. Lower parts, except under tail-coverts, axillars, and under wing-coverts, uniform bright reddish chestnut, lighter, brighter, and less purplish than neck. Upper parts (except as described), under wing-coverts, axillars, and under tail-coverts, glossy metallic dark purple, green, and bronze; the posterior portion of back, posterior scapulars, wing-coverts, tertials, rump, upper tail-coverts, and tail nearly uniform dull violet-purple, changing to bottle-green in certain lights; alulæ, primary-coverts, primaries, and lower secondaries brighter bronze-green; upper secondaries more bronzy, with a purple shade in certain lights. Under surface of wings and tail more burnished, metallic green, bronze, and purple, the tint varying with the inclination to the light; axillars less shining, and more violaceous; crissum violet-purple and green, like the rump. Bill black; bare loral space greenish or bluish; legs and feet greenish blackish.[1]

Young (*changing from first to second plumage*): Head and neck distinctly streaked with dusky brown and white, the dusky streaks wider and more blackish on the pileum, the whitish streaks gradually becoming more indistinct below. Entire lower parts plain snuff-brown, with a soft purplish tinge, especially on the breast and tibiæ; crissum, metallic green and violet. Upper parts dark, metallic violet-purple, green and bronze, the first largely predominating, the last in traces; the back darkest and most uniform, the rump interspersed with bright dark green feathers. A few dark chestnut feathers interspersed over the anterior portion of the lesser wing-covert region (No. 57,003, Greece). *Young* (*changing from second to third plumage*): In general appearance much like the preceding, but breast, abdomen, and tibiæ mostly reddish chestnut, and the anterior portion of the back and scapulars mixed with many feathers of the same color; head and neck much tinged with chestnut, the streaks indistinct (No. 17,493, female, Hungary).

[NOTE. The *Tantalus viridis* of GMELIN (Syst. Nat. ii, pt. i, p. 648, No. 8, based on *Green Ibis* of LATHAM, Synopsis, iii, pt. i, p. 114, No. 13) seems to be this species in incomplete first plumage, or still retaining the downy covering of the head and neck.]

Length, about 25 inches; expanse, 42; wing, 10.20–11.85; tail, 4.30–4.50; culmen, 4.30–5.45; depth of bill, .50–.60; tarsus, 2.90–4.30; middle toe, 2.10–2.80; bare portion of tibia, 1.70–3.10.

The young of *P. autumnalis* closely resembles that of *P. guarauna*, but is rather darker colored, the upper parts being much more violaceous, and the lower parts less grayish.

The Glossy Ibis, like its white relative, is an irregular summer visitor to Illinois, and is not known to breed within our limits. Mr. Julius Hurter, of St. Louis, Mo., took one speci-

[1] Audubon says: "Bill black; bare part of head grayish blue; iris hazel; feet grayish black, claws brown."

men and saw two others at a small lake in Madison Co., seven miles from St. Louis, on February 27, 1880.[1]

[1]See *Bull. Nutt. Orn. Club*, vi, April, 1881, p. 124. This specimen was kindly submitted to me for examination by Mr. Hurter, and I identified it as P. *autumnalis* in immature plumage, but I now fear that my identification is open to question. I have just re-read a letter from Mr. Hurter (dated April 12, 1881), in which he describes the fresh colors of the soft parts as follows: "Iris reddish; bill slate-color *with a very slight reddish tint;* legs slate with also *a reddish tint* on the upper parts; bare skin in front of the eye *brownish red.*" (Italics my own.) The presence of a reddish tint to the soft parts point rather to *P. guarauna*, and the specimen should be carefully re-examined.

Suborder CICONIÆ.—The Storks and Wood Ibises.

Family CICONIIDÆ.—The Storks and Wood Ibises.

Char. Large, Heron-like birds, with bill much longer than the head, thick through the base, and more or less elongate-conical; the nostrils sub-basal, more or less superior, and bored into the bony substance of the bill, without overhanging or surrounding membrane; maxilla without any lateral groove. Legs covered with small, longitudinally hexagonal scales; claws short, depressed, their ends broad and convex, resting upon horny, crescentic "shoes;" hallux with its base elevated decidedly above the base of the anterior toes.

The above characters are sufficient to define this family, which is related to the Ibises (*Ibididæ*) and Spoonbills (*Plataleidæ*) as well as to the Herons. There are two well-marked subfamilies, with the following characters:

Subfamily Ciconiinæ. Bill elongate-conical, acute, compressed, the end not decurved, though sometimes recurved. Nostrils rather lateral than superior. Toes very short, the middle one much less than half the tarsus (only a little more than one third); lateral toes nearly equal; claws short, broad, nail-like.

Subfamily Tantalinæ. Bill elongated, subconical, subcylindrical, the end attenuated and decurved, with the tip rounded; nostrils decidedly superior; toes long, the middle toe one half or more the length of the tarsus; lateral toes unequal, the outer decidedly longer than the inner; claws normal, moderately lengthened, rather narrow.

Subfamily TANTALINÆ.—The Wood Ibises.

Genus TANTALUS Linnæus.

Tantalus Linn. S. N. ed. 10, i, 1758, 140; ed. 12, i, 1766, 240. Type, *T. loculator* Linn.
Tantalides Reichenb. Hand-b. 1851, p. xiv. Same type. (Not of Wagler, 1832,=*Plegadis* Kaup.)
Tantalops Coues, Key, 2d ed. 1882, 653. Same type.

Gen. Char. Large, Stork-like birds, with long legs, neck, and beak, the latter attenuated and decurved terminally, much as in the true Ibises. Bill much thickened at the base, both vertically and laterally, much attenuated terminally, where almost abruptly, but no greatly, decurved. Nostrils bored directly into the bony substance of the bill, the maxilla destitute of any trace of a nasal groove. Legs covered with small longitudinally hexagonal scales. Toes long, very slender, the middle one about, or a little more than, half the length of the tarsus, the outer one reaching to the middle of the subterminal phalanx of the middle toe, the inner much shorter, not reaching the subterminal articulation of the middle toe;

hallux about equal to the inner toe and claw; bare portion of the tibia longer than the middle toe, the upper third, or more, without scales, and smooth; web between inner and middle toes well developed, but smaller than the outer web. Plumage compact above, loose below, the feathers of the neck small, their webs somewhat decomposed. Remiges well developed, the tertials reaching to the end of the primaries, the latter hard, concave beneath, the outer four with their inner webs deeply sinuated at or anterior to the middle portion; second, third, and fourth quills nearly equal, or longest. Tail short (shorter than bill or tarsus), even, of 12 broad, stiff feathers. *Adult*, with the whole head and upper half of hind neck bare, covered with a hard, scurfy, and more or less corrugated skin. *Young*, with the whole head and neck, except the chin and forehead, feathered.

Tantalus loculator Linn.

WOOD IBIS.

Popular synonyms. Wood Pelican; Gannet (Florida); Colorado Turkey (Arizona); Sowewies, Negroscopes (Brit. Guiana); Tagarote, Galambas, Garzon (Mexico).

Tantalus loculator LINN. S. N. ed. 10, i, 1758, 140, No. 1 (ex KLEIN, 127; CATESBY, i, 81); ed. 12, 1766, i, 241, No. 1.—WILS. Am. Orn. viii, 1814, 39, pl. 66, fig. 1.—NUTT. Man. ii, 1834, 82.—AUD. Orn. Biog. iii, 1835, 128, pl. 216; Synop. 1839, 259; Birds Am. vi, 1843, 64, pl. 361 (adult).—CASS. in Baird's B. N. Am. 1858, 682.—BAIRD, Cat. N. Am. B. 1859, No. 497. COUES, Key, 1872, 262; Check List, 1873, No. 444; 2d ed. 1882, No. 648; Birds N. W. 1874, 513.—RIDGW. Nom. N. Am. B. 1881, No. 500; Man. N. Am. B. 1887, 125.—A. O. U. Check List, 1886, No. 188.

Tantalus plumicollis SPIX, Av. Bras. pl. 85 (young).

"*Ibis nandasson; I. nandapoa*, VIEILL." (GRAY & BONAP.)

Wood Pelican CATESBY, Carolina, pl. 81.

Le Curiaca de Cayenne BUFF. Pl. Enl. 1770-84, pl. 868 (adult).

Wood Ibis PENN. Arct. Zoöl. ii, 1785, 458, No. 360.

Tantalus ichthyophagus, the Gannet, BARTRAM, Travels, 1791, 293.

HAB. The whole of tropical and most of warm-temperate America; north to New York (casual), Ohio, Indiana, Wisconsin, Colorado, Utah, Nevada, and California; south to Ecuador and Argentine Republic.

SP. CHAR. *Adult:* Head and upper half of the neck naked, and covered with a hard, scurfy skin, of a dusky color; the vertex covered by a somewhat shield-shaped horny plate, of a lighter color, the neck with transverse, somewhat ovate, bark-like, rugose scales. Plumage in general uniform white, the primary-coverts, remiges, and rectrices black, with metallic purple, bronze, and green reflections. Under wing-coverts pale rose-pink in breeding season. "Bill dusky yellowish brown, the edges yellow; sides of the head dark bluish purple, upper part of the head horn-color, or dull grayish yellow, the rest of the bare skin of the same tint, many of the scales anteriorly blue; iris deep brown, at a distance seeming black; tibia and tarsus indigo-blue; toes above black, on the lateral and hind toes, however, many of the scutellæ bluish gray, the webs pale yellowish flesh-color; claws black" (AUDUBON). *Young:* Head and neck covered with rather scant, somewhat "woolly," feathers, excepting the forehead, anterior part of the crown, lores, anterior portion of malar region, chin, and anterior part of throat, which are covered with a smooth skin. Head and neck grayish brown, darkest on the occiput (where dark sooty), growing gradually paler below. Rest of the plumage as in the adult, but the black feathers of wings and tail less metallic.[1] *Immature:* Head bare and corrugated, as in the adult; neck feathered, as in the young. Total length, about 35.00–45.00 inches; extent of wings, 62.00–70.00; wing, 17.60–19.50; tail, 6.10–7.30; culmen, 7.55–9.30; depth of bill through nostril, 1.55–1.90; tarsus, 7.00–8.50; middle toe, 3.85–4.30; bare part of tibia, 5.00–6.25;[2] weight 11¾ lbs.

[1] According to Audubon, "the young are dusky gray all over, the quills and tail brownish black; the head all covered with down, excepting just at the base of the bill. After the first moult, the bare space extends over the head and cheeks; the downy feathers of the hind head and neck are dusky; the general color of the plumage is white, the quills and tail as in the adult, but with less gloss."

[2] Ten adults measured.

This remarkable bird is an irregular summer visitor to Illinois, particularly the more southern counties, where it occurs, usually in small flocks, about the secluded, forest-hemmed ponds and sloughs. It probably breeds in the extreme southern portion, though oftenest seen during the latter part of summer, when small companies, composed chiefly of young birds, straggle northward. As described by Bartram, it may often be seen standing listless and alone on the topmost limb of some tall dead cypress, its neck drawn in upon its shoulders, and its enormous bill resting, like a scythe, upon its breast. The writer has frequently seen it soaring majestically in broad circles over the Wabash River, at Mt. Carmel, its large size and pure white color rendering it at such times very conspicuous.

Audubon describes its flight as heavy on rising from the ground; its neck is then deeply curved downward, its wings flap heavily, and its legs are not stretched out behind until it has proceeded several yards. It then ascends with great celerity, generally in a spiral direction, in silence unless alarmed; if frightened, it utters a rough guttural croaking note. It proceeds in a direct flight, with alternate flapping and sailing, the latter being more prolonged. It alights on trees with more ease than the heron, and either stands erect, or crouches on the branch in the manner of a wild turkey. When at rest it places its bill against its breast, while the neck seems to shrink between the shoulders. In this position one may sometimes see fifty on the same tree. In the spring months it collects in large flocks before returning to its breeding-place. When a breeding-place has been once chosen, it is resorted to for many years in succession, and the birds are with difficulty made to abandon it. The Wood Ibis feeds largely on fishes, but also devours frogs, young alligators, wood-rats, various kinds of young birds, crabs, snakes, turtles, and the like. It is very tenacious of life, and if wounded resists vigorously, and is dangerous to approach. It is very tough and oily, and unfit for food.

SUBORDER HERODII.—HERONS AND BOATBILLS.

The *Herodii* contain two families, distinguished by the follow-characters:

a.¹ Bill lance-shaped, or compressed, narrow, and pointed, its lateral outlines nearly straight, the gonys several times longer than the width of the under mandible.....Ardeidæ.

a.² Bill shaped like a broad inverted boat; its lateral outlines much bowed, and the gonys not longer than width of under mandible.....Cochleariidæ.

The *Cochleariidæ* are not represented in our fauna, being peculiar to tropical America.

Family ARDEIDÆ.—The Herons.

Char. Altricial waders having the bill compressed, pointed, all the outlines nearly straight; the lores and orbits naked; the rest of the head (except, sometimes, the malar region, or part of the throat) feathered, the occiput, also lower foreneck, back, or scapulars, frequently with ornamental plumes. Plumage generally handsome and variegated. Two to three pairs of powder-down tracts. Other characters variable.

The Herons are among the most widely diffused of birds, one species, the common Night Heron (*Nycticorax nycticorax*) being nearly cosmopolitan. Many of the Old World forms have not been examined in the present connection, but there is good reason for believing that the number of subfamilies here recognized as represented in America can be consistently increased.

Ardeinæ. Tail-feathers 12, more lengthened, and decidedly more stiff than the coverts; outer toe as long as or decidedly longer than the inner; claws comparatively short and strongly curved.

Botaurinæ. Tail-feathers 10, very short, scarcely more stiff than the coverts; outer toe decidedly shorter than the inner; claws lengthened, slightly curved.

Subfamily ARDEINÆ.—The True Herons and Egrets.

Analysis of Genera.

a.[1] Bill comparatively long and narrow, the culmen longer than the tarsus, and equal to at least five times the greatest depth of the bill; plumage of the young not conspicuously different in pattern from that of the adult.....Ardea.

a.[2] Bill comparatively short and thick, the culmen not longer than the tarsus, and equal to not more than four times the greatest depth of the bill; plumage of the young conspicuously different in pattern from that of the adult .....Nycticorax.

GENUS ARDEA LINNÆUS.

Ardea LINN. S. N. ed. 10, i, 1758, 141. Type, by elimination, *A. cinerea* LINN.

ANALYSIS OF SUBGENERA

a^1 **Culmen decidedly shorter than tarsus, the latter more than one and a half times as long as the middle toe, without claw.**

b^1 **Tarsus much less than twice as long as middle toe, without claw.**

c^4 **Wing more than 13 inches.**

d^1 **Wing more than 17 inches.** *Adults* **with scapular plumes narrowly lanceolate, with compact webs; head crested, the occiput, during pairing season, with two or more long, slender, compactly webbed plumes; plumes of lower neck stiffened, narrowly lanceolate, or acicular.....Ardea.**

d^2 **Wing less than 17 inches.** *Adults in nuptial plumage* **with the scapular plumes excessively elongated, reaching far beyond the tail, their shafts thick and stiffened, their webs decomposed; head without crest or plumes, and feathers of lower neck (in American species) soft, broad, and not lengthened; color, always wholly pure white.....Herodias.**

c^2 **Wing less than 11 inches.**

d^1 *Adults* **with occipital, jugular, and scapular plumes greatly developed, with much decomposed webs (occipital and jugular plumes with compact webs in exotic species); the scapular plumes extending to or beyond end of tail and recurved at tips; color of plumage always wholly pure white. Garzetta.**

d^2 *Adults* **with jugular and scapular plumes much elongated; the former narrowly lanceolate, with compact webs, the latter also narrow, but more loosely webbed, and often extending far beyond the tail; color of plumage varying from uniform dark slate-blue, with maroon-colored head and neck (in most adults), to pure white with only the tips of some primaries bluish (in young); adults sometimes mixed white and bluish.....Florida.**

b^2 **Tarsus twice as long as middle toe, without claw.** *Adults* **with feathers of entire head and neck, except throat and upper foreneck, elongated and narrowly lanceolate, especially on occiput and lower foreneck; scapular plumes much elongated, extending beyond end of tail, with shafts straight and stiffened, and webs decomposed, but the hair-like fibrillæ rather close together; color of plumage uniform bluish and reddish, uniform white, or pied.....Dichromanassa.**

a^2 **Culmen equal to or longer than tarsus, the latter less than one and a half times as long as middle toe without claw.**

b^1 **Wing more than 8 inches; culmen and tarsus more than 3 inches.** *Adults* **with an occipital tuft of several moderately lengthened, lanceolate, compactly webbed feathers; jugular plumes broadly lanceolate, with compact webs; scapular plumes greatly elongated, extending to beyond end of tail, straight, hair-like; color of plumage mixed grayish or bluish and white, never entirely white. Hydranassa.**

b^2 **Wing not more than 8 inches; culmen and tarsus less than 3 inches.** *Adults* **with scapular plumes and feathers on top of head moderately lengthened, lanceolate, with compact webs; jugular plumes broad, soft, and blended; color of plumage more or less metallic, in adults, on upper parts, grayish or rusty beneath; never white.....Butorides.**

Several of the above are unquestionably good genera; but having announced my determination to follow the A. O. U. classification and nomenclature in this work I am obliged to do so in this case. With the exception of *Dichromanassa* and *Hydranassa* (which are related most nearly to *Demiegretta*, of southeastern Asia, Polynesia, etc.) and *Florida*, all the groups are cosmopolitan, being represented in different regions by distinct species, all agreeing minutely in structural characters. *Butorides*, for example, has, besides the North American species, one in Cuba, another in South America, a third in the Galapagos Archipelago, and several others in various parts of the eastern hemisphere.

Subgenus **Ardea** Linnæus.

Ardea Linn. S. N. ed. 10, i, 1758, 141. Type, by elimination, *A. cinerea* Linn.

Subgen. Char. Herons of largest size (of Stork-like stature), the adults distinguished by lengthened, narrowly-lanceolate, acute jugular and scapular plumes (the former rather rigid, the latter overhanging the wings and rump); a tuft of broad feathers on each side the breast (having a different color from adjacent parts), and, *in the breeding season*, by the presence of two or three extremely lengthened, narrow, pendant, occipital plumes.

Culmen almost straight; gonys ascending, slightly convex, about equal in length to the mandibular rami; upper and lower outlines of the bill parallel for the basal half. Mental apex anterior to half-way between point of bill and anterior angle of the eye; frontal apex a little posterior to the nostrils and a little anterior to the malar apex.* Middle toe more than half the tarsus, and about equal to bare portion of tibia; outer toe reaching to about the middle of the penultimate phalanx of the middle toe; inner toe decidedly shorter, reaching only to the second articulation of the middle toe; hallux a little longer than the basal phalanx of the outer toe; claws rather short, strongly curved. Front of tarsus with broad, transverse scutellæ, in single series, for upper half. Pileum crested, the feathers of the crown and occiput being elongated, lanceolate, and decurved. Primaries reaching decidedly beyond tertials. Second, third, and fourth quills nearly equal, and longest; first longer than fifth; inner webs of outer three slightly sinuated near ends.

Synopsis of Species.

a^1. Color of plumage entirely pure white. *Hab.* Southern Florida.....**A. occidentalis.**

a^2. Color of plumage chiefly bluish or grayish.

b^1. *Adult* with head entirely white, except (usually) black or dusky streaks on forehead, or (rarely), a blackish patch on sides of crown or occiput, beneath edge of crest; more white on under parts, edge of wing, etc. *Hab.* Southern Florida; accidental in southern Illinois ..... **A. wuerdemannii.**

b^2. *Adult* with top of head, including occipital plumes, black, with a large white patch covering forehead and center of crown; more black on lower parts and more rufous on edge of wing.

c^1. Larger, with legs and feet yellowish brown or olive-yellowish; total length, about 48 to 54 inches; wing, 19.50–21.00; exposed culmen, 5.90–6.90; tarsus, 7.85–8.40. *Hab.* Florida .....**A. wardi.**

* The terms "mental apex", "malar apex", and "frontal apex" are here employed to denote the apices, or points of the feathering of the head at the base of the bill.

*c*². Smaller, with legs and feet black or dusky, only the tibiæ yellowish; total length about 40 to 48 inches; wing, 18.00–19.50; exposed culmen, 5.45–5.95; tarsus, 6.75–7.85. *Hab.* Whole of temperate North America and parts of tropical America.....**A. herodias.**

The relationship between these four species or races is very puzzling, and no one, apparently, fully understands the case. While each of the four forms is easily recognized by the character given above, and while a large majority of specimens are typically either one or the other of them, intermediate examples not unfrequently occur. The only apparent difference between *A. herodias* and *A. wardi* consists in general dimensions and in the color of the legs; but in both respects there seems to be a complete intergradation among Florida specimens. On the other hand, *A. wardi*, *A. wuerdemannii*, *and A. occidentalis* agree minutely in measurements and in the color of the legs; and the first two unquestionably intergrade. The writer has already expressed the hypothesis that *A. wuerdemannii* and *A. occidentalis* are merely dichromatic phases of one species, corresponding to the colored and white phases of the Reddish Egret (*A. rufescens* and *A. "pealei"*). This hypothesis he would now modify by suggesting that *A. wardi* is the perfect colored phase of *A. occidentalis*, and that *A. wuerdemannii* is merely an intermediate phase,—a suggestion prompted by the circumstance that *A. wuerdemannii* varies more in coloration than either of the others, the variations moreover tending toward both *A. wardi* and *A. occidentalis*. Whether the intergradation between *A. wardi* and *A. herodias* is the result of hybridization or an evidence of their specific identity remains to be determined, if it be possible to determine it. The whole question is indeed so complicated that much patient research will be necessary before we can hope to know more about it.

Ardea wuerdemannii Baird.

WUERDEMANN'S HERON.

Ardea würdemannii Baird, B. N. Am. 1858, 669, ed. 1860, atl. pl. 86; Cat. N. Am. B. 1859, No. 488.—Coues, Key, 1872, 267; Check List, 1873, No. 450.—Nels. Bull. Essex Inst. Dec. 1876, 151.

Ardea wuerdemannii A. O. U. Check List, 1886, 351 ("Hypothetical List," No. 9).—Ridgw. Man. N. Am. B. 1887, 128, 583; Proc. U. S. Nat. Mus. x, 1887, 112–115 (critical).—Scott, Auk. Jan. 1889, 16–17 (description, etc.).

Ardea occidentalis (supposed colored phase) RIDGW. Bull. U. S. Geol. & Geog. Surv. Terr. iv, No. 1, Feb. 5, 1881, 227-237 (descriptive and critical); Nom. N. Am. B. 1881, No. 486 (part).—COUES, 2d Check List, 1882, No. 656; 2d Key, 1884, 658.—B. B. & R. Water B. N. Am. i, 1884, 6.

HAB. Southern Florida; Cuba; Jamaica; accidental in southern Illinois.

SP. CHAR. *Adult:* Entire head, including occipital crest, pure white; the forehead streaked with black (the feathers edged with black, the median stripe being white). Abdomen and under tail-coverts pure white, the former sparsely streaked with black (these streaks on the inner edge of the feathers, and broader anteriorly), the latter immaculate. Neck deep violaceous-drab (darker and more violaceous than in *A. herodias*, and ending almost abruptly against the white of the head); the throat with a narrow series of black and rufous dashes on a white ground; plumes of the lower neck white, most of them edged with black, but the longer without grayish tinge. Lateral jugular tufts blue-black, with wide median stripes of pure white. Upper parts exactly as in *A. herodias*, except that the outermost wing-coverts have conspicuous median streaks of white, while the edge of the wing from the carpus back is white, tinged with rufous, instead of wholly rufous. Tibial feathers paler rufous than in *A. herodias*, growing almost white next the body on the inner side Naked tibiæ yellow; under side of toes yellow; rest of legs and feet yellowish olive. *Young:* Similar to young of *A. herodias*, but lesser wing-coverts widely tipped with bright ferruginous, producing thereby a conspicuous spotting of this color; all the more exterior wing-coverts, large and small, with a large, terminal, wedge-shaped spot of white. Forehead and crown dusky slate-color, most of the feathers with whitish shafts; occipital plumes all whitish at the base, only the ends being dusky.

Total length, about 48 to 54 inches; wing, 18.75-21.00; tail, 6.25-8.00; exposed culmen, 5.75-6.70; tarsus, 7.30-8.75; middle toe, 4.20-5.20.

The habits of this bird are essentially the same as those of the Great Blue Heron. Its right to a place in the Illinois fauna may seem questionable, in view of the southern location and restricted area of its proper range, but a single specimen was seen on several occasions by the writer from September 11 to 22, inclusive, in the Wabash River, at the Grand Rapids, near Mt. Carmel. Even at a distance which rendered it secure from gunshot, it could at once be distinguished, by its white head and greater size, from individuals of the common species, from which it kept aloof. Unfortunately it could not be secured.

Ardea herodias Linn.

THE GREAT BLUE HERON.

Ardea herodias LINN. S. N. ed. 10, i, 1758, 143; ed. 12, i, 1766, 237.—WILS. Am. Orn. viii, 1814, 28, pl. 65, fig. 5.—SW. & RICH. F. B.-A. ii, 1831, 373.—NUTT. Man. ii, 1834, 42.—AUD. Orn. Biog. ii, 1835, 87; v, 1839, 599, pl. 211; Synop. 1839, 265; B. Am. vi, 1843, 122, pl. 369.—BAIRD B. N. Am. 1858, 668; Cat. N. Am. B. 1859, No. 487.—COUES, Key, 1872, 267; 2d ed. 1884; Check List, 1873, No. 449; 2d ed. 1882, No. 655; Birds N. W. 1874, 517.—RIDGW. Nom. N. Am. B. 1881, No. 487; Man. N. Am. B., 1887, 129.—B. B. & R. Water B. N. Am. i, 1884, 13.—A. O. U. Check List, 1886, No. 194.

Ardea hudsonias LINN. S. N. ed. 12, i, 1766, 238.

Ardea lessoni WAGL. Isis, 1831, 531.—REICHEN. J. f. O., 1877, 266.

HAB. The whole of North and Middle America, excepting Arctic districts; north to Hudson's Bay, "Fur Countries," and Sitka; south to Colombia, Venezuela, and the Galapagos; Bermudas, and throughout the West Indies.

SP. CHAR. *Adult:* Length, about 42.00–50.00; extent, 72.00; weight, 5 to 8 pounds. Forehead and central feathers of the crown pure white; sides of crown and whole of the occiput, including the long plumes, blue-black. Chin, throat, and malar region pure white. Neck lavender-gray, fading gradually above into the white of cheeks and throat. Foreneck with a narrow median series of black and ferruginous dashes mixed with white; lower neck-plumes pale lavender-gray. Lateral jugular tufts uniform blue-black; breast and abdomen black, almost uniform laterally, but the middle feathers with broad median stripes of white. Under tail-coverts white, sometimes edged with rufous. Tibial feathers deep chestnut-rufous, not growing conspicuously paler toward the body. Upper parts fine slate-blue, the dorsal and scapular plumes paler, more pearl-gray—the lightness of the tint proportionate to the length of the plume; remiges black, the inner secondaries growing gradually more slaty, so that the innermost are scarcely darker than the tertials. Tail deep slate-blue, a shade darker than the tertials. Entire border of the wing, from the armpit to the metacarpo-phalangeal joint, rich purplish rufous, scarcely mixed anywhere with white, and much the widest at the bend. Bill olive above, the culmen blackish; lower mandible wax-yellow, brighter terminally (sometimes wholly yellow); iris bright yellow; bare loral space cobalt-blue in spring, olive-greenish or yellowish after breeding season. Legs and feet dusky-black, the tibiæ paler, more olivaceous, sometimes tinged with yellowish. *Young:* Above slate-gray (less bluish than in the adult), destitute of any penicillate plumes; anterior lesser wing-coverts bordered terminally with light rufous; border of the wing (broadly) white, more or less tinged with rufous, especially at and near the bend, where this color prevails. Entire pileum, including all the occipital feathers, blackish-slate, with a narrow median crest of more elongated darker-colored feathers, with pale fulvous shaft-streaks. Cheeks dark grayish; malar region, chin, and throat only, pure white. Neck dull gray, sometimes tinged with rufous, some of the feathers with indistinctly lighter shaft-streaks; foreneck with a narrow longitudinal series of black, rufous, and whitish dashes, much as in the adult. Breast and abdomen broadly striped with dark cinereous and white, in nearly equal amount (sometimes suffused with rufous). Tibiæ very pale rufous, sometimes almost white; crissum white. Upper mandible black, paler, or horn-color, along the tomium; lower, pale pea-green, deepening into clear horn-yellow on terminal half; eyelids and horizontal space on lores light apple-green; iris gamboge yellow; tibiæ and soles of toes, apple-green; rest of legs and feet black.

Wing, 17.90–19.85; tail, 7.30–8.00; culmen, 4.30–6.00; depth of bill, through middle of nostril, 0.85–1.10; naked portion of tibiæ, 3.50–5.00; tarsus, 6.00–8.00; middle toe, 3.50–4.50. [Extremes of 17 adult specimens.]

The Great Blue Heron is a common bird throughout the State, except in localities far removed from streams or ponds which furnish its food supply. It sometimes winters in the extreme southern counties, but it is usually a migrant, returning from the south in February, March, or early April, according to the latitude.

Solitary and wary, this bird may be seen standing in shallow water, often in mid-stream, but it requires great caution and skill on the part of the person who, with gun in hand, can approach within killing distance of an adult bird, the young being

more easily stalked. More often the heron first sees the intruder, and startles him by its harsh squawking cries as it flies from its feeding place.

Breeding colonies of this species were formerly common in many parts of the state, but they are becoming scarce in consequence of wanton persecution by squirrel hunters and others. They usually select the largest trees and build their bulky nests of sticks on the highest branches, a dozen or more nests sometimes being built in one tree.

The food of this bird consists of fishes, frogs, crawfish, etc., large quantities of which must be sacrificed to appease its voracious appetite, as many as ten "good-sized" fishes having been disgorged at one time by a heron that was in haste to get away.

Subgenus **Herodias** Boie.

Herodias Boie, Isis, 1822, 559. Type, by elimination, *Ardea egretta* Linn.

Subgen. Char. White Herons of large size, and without plumes, except in the breeding season, when ornamented simply (in most species) by a long train of straight feathers, with thick shafts, and long, sparse, decomposed, slender barbs, which grow from the dorsal region and overhang the tail. Bill moderately slender, the upper and lower outlines almost parallel to near the end, where gently curved, the culmen more abruptly so than the gonys, though the curve is quite gradual. Mental apex reaching a point about midway between the tip of the bill and the eye; malar apex decidedly anterior to the frontal apex, and extending to beneath the posterior end of the nostrils. Toes very long, the middle one about two thirds the tarsus, the hallux much less than one half the former. Tibiæ bare for about one half their length, or for about the length of the middle toe. Anterior scutellæ of tarsus large, distinct, and nearly quadrate. Nuptial plumes confined to the anterior part of the back, whence spring numerous long, straight, and thick shafts, reaching, when fully developed, to considerably beyond the end of the tail, each stem having along each side very long, slender, and distant fibrillæ. Tail even, of twelve broad feathers. Lower hind neck well feathered. Plumage entirely pure white at all stages and seasons.

This subgenus, like *Ardea*, *Garzetta*, etc., is nearly cosmopolitan, being wanting only in the islands of the South Pacific and in the colder latitudes of other regions. It contains but a single American species, which has a more extensive range than any other of the American herons, excepting only the Night Heron, its regular habitat extending from the United States to Patagonia.

Ardea egretta Gmel.

THE AMERICAN EGRET.

Popular synonyms. Great White Egret; White "Crane;" Garza blanca grande (Mexico).

La Grande Aigrette d'Amerique BUFF. Pl. Enl. 1770–86, pl. 925.
Great White Heron LATH. Synop. iii, 1785, 91.
Great Egret LATH. t. c. 89 (based on Pl. Enl. 925).
Ardea egretta GMEL. S. N. i, 1788, 629, No. 34 (based on Pl. Enl. 925, and Lath. t. c.).—WILS Am. Orn. vii, 1813, 106, pl. 61, fig. 4.—NUTT. Man. ii, 1834, 47.—AUD. Orn. Biog. iv, 1838, 600, pl. 386; Synop. 1839, 265; B. Am. vi, 1843, 132, pl. 370.—COUES, Key, 1872, 267; Check List, 1873, No. 452; Birds N. W. 1874, 519.—A. O. U. Check List, 1886, No. 196.—RIDGW. Man. N. Am. B. 1887, 130.
Herodias egretta GRAY, Gen. B. iii, 1849.—BAIRD, B. N. Am. 1858, 666; Cat. N. Am. B. 1859, No. 486.—RIDGW. Orn. 40th par. 1877, ——.—B. B. & R. Water B. N. Am. i, 1884, 23.—COUES. Check List, ed. 2, 1882, No. 658.
Herodias alba, var. *egretta*, RIDGW. Ann. Lyc. N. Y. Jan. 1874, 386.
Herodias alba egretta RIDGW. Bull. Essex Inst. Oct. 1874, 171; Nom. N. Am. B. 1881, No. 489.
Herodias egretta, var. *californica* BAIRD, B. N. Am. 1858, 667; Cat. N. Am. B. 1859, No. 486 *a*.
Ardea leuce "ILLIGER," LICHT. Verz. Doubl. 1823, No. 793.
Ardea alba, subspec. *galatea*, REICHENOW, J. f. O. 1877, 272.

HAB. The whole of temperate and tropical America, from Nova Scotia, Ontario, Minnesota, and Oregon, to Patagonia; throughout the West Indies.

SP. CHAR. Length, about 37.00–39.00; extent, about 55.00–57.00; wing, 14.10–16.80; tail, 5.60–7.30; culmen, 4.20–4.90; depth of bill, .70–.80; tarsus, 5.50–6.80; middle toe, 3.50–4.30; naked portion of tibia, 3.50–4.50; weight, about 2¼ lbs. Color entirely pure white at all seasons and at all ages. Bill and lores rich chrome-yellow (the latter sometimes tinged with light green), the culmen usually black near the tip, sometimes nearly the entire maxilla black; iris naples-yellow; legs and feet entirely deep black.

Having specimens before us from all parts of its range, we are unable to detect in this species any variations of a geographical nature. The chief difference between individuals consists in the amount of black on the maxilla, this being sometimes almost *nil*, while again the maxilla may be entirely black. That this variation has no relation to season is shown by the fact that in a considerable series shot from one "rookery" in Florida, and all bearing the nuptial train, the extremes are presented by different individuals, others being variously intermediate.

The Great White Egret is either a summer resident or visitant in almost every portion of the State. While no doubt breeding in many localities it usually occurs as a visitor late in summer, in August and September, when it may be seen, either singly or in small groups, sometimes in large numbers, wading about in shoal places in the rivers or ponds. Professor Forbes informs me that it is abundant all summer on the Illinois River as far north as Peoria; but he does not state whether it is known to breed there.

—D.

Subgenus Garzetta Kaup.

Garzetta Kaup, Nat. Syst. Eur. Thierw. 1829, 76.—Bonap. Consp. ii, 1855, 118. Type, *Ardea garzetta* Linn.

Subgen. Char. Small white Herons, crested at all ages and seasons, and in the nuptial season adorned with jugular and dorsal plumes. Bill slender, very little compressed, the culmen decidedly curved for the terminal half, somewhat depressed for the basal half, the gonys nearly straight, but ascending; the lower edge of the mandibular rami straight or appreciably concave. Mental apex falling far short of reaching half-way from the middle of the eye to the point of the bill; malar apex reaching just as far as the frontal apex, and falling far short of the posterior end of the nostrils. Toes short, the middle one but little more than one half the tarsus, the hallux about one half its length; bare portion of tibia nearly three fourths as long as the tarsus. Tarsal scutellæ as in *Herodias*.

Nuptial plumes adorning the occiput, jugulum, and back; these, in the American species, all of similar structure, having decomposed webs; but in the Old World species, those of the occiput and jugulum narrow and with compact webs. Dorsal plumes (in all species) reaching but little beyond the tail, and strongly recurved at ends.

Ardea candidissima Gmel.

THE SNOWY HERON.

Popular synonyms. Little Egret; White-crested Egret; White Poke; Black-legged Gaulin (Jamaica); Garza blanca chica (Mexico).

Ardea nivea Jacq. Beitr. 1784, 18, No. 13 (not of S. G. Gmel. 1770-1774).—Lath. Ind. Orn. ii, 1790, 696 (part).

Little White Heron Lath. Synop. iii, 1785, 93.

Little Egret Lath. Synop. iii, 1785, 90 (part; includes also *G. nivea*).

Ardea candidissima Gmel. S. N. i, pt. ii, 1788, 633, No. 45.—Wils. Am. Orn. vii, 1813, 120, pl 62, fig. 4.—Nutt. Man. ii, 1834, 49.—Aud. Orn. Biog. iii, 1835, 317; v, 1839, 606, pl. 242; Synop. 1839, 267; Birds Am. vi, 1843, 163, pl. 374.—Coues, Key, 1872, 267; 2d ed. 1884; Check List, 1873, 89, No. 453; Birds N. W. 1874, 521.—Reichenow, J. f. O. 1877, 273.—A. O. U. Check List, 1886, No. 197.—Ridgw. Man. N. Am. B. 1887, 130.

Garzetta candidissima Bonap. Consp. ii, 1855, 119.—Baird, Birds N. Am. 1858, 665; Cat. N. Am. B. 1859, No. 485.—Ridgw. Nom. N. Am. B. 1881, No. 490.—Coues, Check List, 2d ed. 1882, No. 659.—B. B. & R. Water B. N. Am. i, 1884, 23.

Ardea oula Gmel. S. N. i, pt. ii, 1788, 633 (Chili).

Ardea thula Lath. Ind. Orn. ii, 1791. 688.

Ardea carolinensis Ord, ed. Wils. vii, 1825, 125.

Ardea lactea "Cuv." Less. Traité, i, 1831, 575 (Cayenne).

Hab. The whole of temperate and tropical America, from the northern United States to Chili and Argentine Republic; summer or autumnal visitant only at the northern and southern extremes of its range. West Indies.

Sp. Char. Plumage entirely pure white, at all ages and seasons. Bill black, the basal portion of the under mandible (sometimes one half) yellow or otherwise pale-colored; lores, iris, and eyelids yellow or orange-yellow; tibiæ and tarsi black, the lower portion of the latter, with the toes, yellow; claws blackish.

Nuptial plumes slender-shafted and loose-fibred, those of the back reaching to or slightly beyond the end of the tail, and, normally, recurved terminally; those of the occiput sometimes exceeding the bill in length; those of the jugulum slightly less developed. In the young these are all absent, except on the occiput, where they are but slightly developed; in the adults the occipital plumes appear to be permanent, the others assumed only during the breeding season.

Total length, about 20.00–27.25; expanse of wings, about 36.00–40.00; wing, 8.20–10.50; tail, 3.00–4.80; culmen, 2.08–3.65; depth of bill, .40–.55; tarsus, 3.15–4.50; middle toe, 2.20–3.20; bare portion of tibia, 1.70–2.75; weight, about 10–14 ounces.

This beautiful egret occurs during summer in various parts of the State, but probably not abundantly except in the more southern portions.

Subgenus **Dichromanassa** Ridgway.

Dichromanassa Ridgw. Bull. U. S. Geol. & Geog. Survey, Terr. iv, No. 1, Feb. 5, 1878, 246. Type, *Ardea rufa* Bodd., =*A. rufescens* Gmel.

Subgen. Char. Medium-sized Herons, of uniform white or plumbeous plumage, with (adult) or without (young) cinnamon-colored head and neck; the form slender, the toes very short, and the legs very long; the adults with the entire head and neck (except throat and foreneck) covered with long, narrowly lanceolate, compactly webbed feathers, which on the occiput form an ample crest, the feathers of which are very narrowly lanceolate and decurved.

Bill much longer than the middle toe (about two thirds the tarsus), the upper and lower outlines almost precisely similar in contour, being nearly parallel along the middle portion, where slightly approximated; the terminal portion of both culmen and gonys gently and about equally curved. Mental apex extending to a little more than one third the distance from the middle of the eye to the tip of the bill, or to about even with the anterior end of the nostril; malar apex about even with that of the frontal feathers. Toes very short, the middle one less than half the tarsus, the hallux less than half the middle toe; bare portion of tibia more than half as long as tarsus; scutellation of tarsus, etc., as in *Herodias*, *Garzetta*, and allied subgenera.

Plumes of the adult consisting of a more or less lengthened train of fastigiate, stiff-shafted feathers, with long, loose, and straight plumules, and extending beyond the tail; in addition to this train, the scapulars and the feathers of the whole head and neck, except the throat and foreneck, are long and narrow, distinctly lanceolate, and acuminate, with compact webs, and on the occiput are developed into an ample decurved crest.

There is only one species belonging to this subgenus, the dichromatic *Ardea rufescens* Gmel., the white phase of which was formerly considered a distinct species, under the name of Peale's Egret (*Ardea pealei* Bonap.).

Ardea rufescens Gmel.

REDDISH EGRET.

Popular synonyms. Russet Egret; Peale's Egret.

a. Colored Phase.

L'Aigrette rousse, de la Louisiane Buff. Pl. Enl. 1777–1784, pl. 902 (adult).

Ardea rufa Bodd. (*nec* Scop. 1769) Tabl. P. E. 1783, 54 (based on Pl. Enl. 902).—Coues, Key, 1872, 268; Check List, 1873, No. 455.—Reichenow, J. f. O. 1877, 269.—A. O. U. Check List, 1886, No. 198.—Ridgw. Man. N. Am. B. 1887, 131.

Demiegretta rufa Baird, Birds N. Am. 1858, 662; Cat. N. Am. B. 1859, No. 483.

Dichromanassa rufa RIDGW. Bull. U. S. Geol. & Geog. Surv. Terr. iv, No. 1, 1878, 236 (in text); Nom. N. Am. B. 1881, No. 491.—COUES, Check List, 2d ed. 1882, No. 661.—B. B. & R. Water B. N. Am. i, 1884, 33.

Reddish Egret LATH. Synop. iii, 1785, 88 (quotes Pl. Enl. 902).

Areda rufescens GMEL. S. N. i, pt. ii, 1788, 628, No. 33 (based on Pl. Enl. 902).—AUD. Orn. Biog. iii, 1835, 411; v, 1839, 604, pl. 256; Birds Am. vi, 1843, 139, pl. 371 (adult: both phases).—RIDGW. Man. N. Am. B. 1887, 131.

Ardea cubensis "GUNDL. MSS." LEMB. Aves de Cuba, 1850, 84, pl. 13, fig. 1 (young).

b. White phase.

Ardea pealei BONAP. Ann. Lyc. N. Y. ii, 1826, 154.—NUTT. Man. ii, 1834, 49.—RIDGW. Man. N. Am. B. 1887, 131.

Demiegretta pealei BAIRD, B. N. Am. 1858, 661; Cat. N. Am. B. 1859, No. 182.

Ardea rufa, var. *pealei*, REICHENOW, J. f. O. 1877, 270.

Ardea (Dichromanassa) pealei A. O. U. Check List, 1886, 352 (hypothet. list, No. 10).

HAB. Warm-temperate and tropical North America, south to Guatemala; in the United States, apparently restricted to the Eastern Province, but in Mexico occurring on both coasts; north to southern Illinois; Jamaica; Cuba.

Colored phase.

Adult. Plumage in general uniform slate-gray, darker on the back, a little lighter beneath; entire head and neck rich vinaceous-cinnamon, ending abruptly below; the penicillate tips of some of the longer feathers, particularly on the occiput, lighter; train similar to the back anteriorly, but passing into a more brownish tint towards the end, the tips sometimes whitish. Terminal half of the bill black; basal half, including the lores and eyelids, pale flesh-color or pale grayish (according to season); iris yellow or white; legs and feet black, or (in breeding season) ultramarine blue, the scutellæ and claws black. (AUDUBON.)

Young. No train on the back, and no lanceolate feathers on head or neck, except sometimes (in older individuals) on the occiput or lower neck. Prevailing color dull bluish ashy, tinged here and there with reddish cinnamon, principally on the throat and lower neck.

White phase.

Adult. Plumage entirely pure white, the plumes exactly as in the adult of the colored phase. Iris white; color of bill, lores, and eyelids in life also similar; but legs and feet sometimes "dark olive-green, the soles greenish yellow." (AUDUBON.)

Young. Entirely pure white, and destitute of the plumes and train of the adult.

Total length, about 27.00–32.00; expanse, about 45.00–50.00; weight, about 1½ pounds. (AUDUBON.) wing, 11.90–13.60; tail, 4.10–5.00; culmen, 3.30–4.00; depth of bill, .55–.70; tarsus, 4.90–5.75; middle toe, 2.50–2.85; bare portion of tibia, 2.60–3.75.

The inclusion of this southern species of heron in the Illinois fauna rests on the statement of Mr. E. W. Nelson, in his paper on the birds of southern Illinois,* that he found it "quite common in the vicinity of Cairo during the last week in August, 1875," the unusually high water of that season having caused a much larger number of herons than usual to make their appearance. He observed that "although *Ardea egretta* and *A. cærulea*—both of which were seen by the hundred daily—were quite unsuspicious, *A. rufa* was so exceedingly shy that it was almost impossible to get within gunshot of one."

* Bulletin Nuttall Ornithological Club, i, 1876, p. 40.

According to Dr. Brewer, the flight of this species is said to be more elevated and regular than that of the smaller herons. It is peculiarly graceful during the mating season, especially when one unmated male is pursuing another. It is said to pass through the air with great celerity, turning and cutting about in curious curves and zigzags, the pursuing bird frequently erecting its beautiful crest and uttering a cry at the moment it is about to give a thrust at the other. When travelling to and from their feeding-grounds, it propels itself with the usual regular flapping, and in the customary manner of flight of other herons. On approaching a landing-place, it performs several circumvolutions, as if to satisfy itself that all is safe before alighting. It is much more shy and wary than the smaller herons; and after the breeding season is over it is almost impossible to shoot one, except when it is taken by surprise, or when flying overhead among the mangroves.

Subgenus **Florida** Baird.

Florida Baird, B. N. Am. 1858, 671. Type, *Ardea cærulea* Linn.

Gen. Char. Small Herons, dark plumbeous, with maroon-colored necks; pure white, with bluish tips to some of the primaries; or with the plumage variously intermediate between these extremes. Bill slender, appreciably curved toward the tip, the culmen somewhat depressed just above the anterior end of the nostril; lower edge of the mandibular rami slightly concave, the gonys nearly straight, but ascending; anterior point of the malar feathers reaching just about as far forward as that of the frontal feathers, and very far posterior to the posterior end of the nostril; anterior point of chin feathers almost directly beneath the anterior end of the nostril, and a little over two thirds the distance from the middle of the eye to the point of the bill. Toes long, the middle one two thirds, or more, as long as the tarsus, the hallux a little less than half its length; bare portion of tibia considerably less than middle toe. Tarsal scutellæ as in *Garzetta* and *Herodias*.

Nuptial plumes (occipital, jugular, and scapular) long, slenderly lanceolate, the webs rather compact, especially those of the dorsal region, the longer scapulars, however, loose-webbed, those of the back reaching, when fully developed, far beyond the tail.

This subgenus also is peculiar to America, and contains a single species, the Little Blue Heron (*Ardea cærulea* Linn.), the adults of which are usually dark slaty blue with maroon-chestnut head and neck and the young pure white with bluish tips to some of the longer primary quills.

Ardea cærulea Linn.

LITTLE BLUE HERON.

Popular synomyms. Blue Egret; Little White Heron (young); Booby (parts of Florida); Garza azul (Mexico).

Ardea cærulea CATESBY, Carolina, i, 1731, pl. 76 (blue adult).
Héron bleuâtre de Cayenne BUFF. Pl. Enl, 1770-84, pl. 349 (blue adult).
Ardea cærulea LINN. S. N. ed. 10, i, 1758, 143, No. 13 (*ex* Brown, Jam. 478; Catesby, *l. c.*), i, 1766, 238, No. 17.—WILS. Am. Orn. vii, 1813, 117, pl. 62.—NUTT. Man. ii, 1834, 58.—AUD. Orn. Biog. iv, 1838, 58, pl. 307; Synop. 1839, 266; B. Am. vi, 1843, 148, pl. 372.—COUES, Key, 1872, 268; Check List, 1873, No. 456.—A. O. U. Check List, 1886, No. 200.—RIDGW. Man. N. Am. B. 1887, 130.

Florida cærulea BAIRD, Birds N. Am. 1858, 671; Cat. N. Am. B. 1859, No. 490.—RIDGW. Nom. N. Am. B. 1881, No. 493.—COUES, Check List, 2d ed. 1882, No. 662.—B. B. & R. Water B. N. Am. i, 1884, 43.

Blue Heron, var. A. LATH. Synop. iii, 1785, 79 (blue adult. Quotes Pl. Enl. 349).
Ardea cærulescens LATH. Ind. Orn. ii, 1790, 690, No. 49 (based on the above).
Le Crabier bleu à cou brun BUFF. Ois. vii, 399 (blue adult).
Blue Heron LATH. Synop. iii, 1785, 78 (quotes *Ardea cærulea*, LINN.).
? *Little White Heron*, var. B. LATH. Synop. iii, 1785, 94 (Mexico. Probably young white bird).
Ardea ardesiacea LESS. Traité, i, 1831, 575 (Cayenne. Individual in pied plumage).
Herodias poucheti BONAP. Consp. ii, 1855, 123 (blue adult).
"*Egretta nivea*" GOSSE, Birds Jam. 1847, 334; Illustr. B. Jam. pl. 90 (young white bird).
Ardea cærulea, var. *alba*, REICHENOW, J. f. O. July, 1877, 264 (white phase).
Ardea cærulea, var. *cyanopus*, REICHENOW, l. c. (intermediate, or pied, phase. *Ex Ardea cyanopus* GMEL. S. N. i. pt. ii, 1788, 644).
Ardea mexicana cinerea BRISS. Orn. v, 1760, 404 (intermediate phase).
Ardea americana cinerea BRISS. t. c. 406.
Ardea cancrophagus brasiliensis BRISS. t. c. 479.
Ardea chalybea STEPHENS, Shaw's Gen. Zoöl. xi, ii, 1819, 582.
Ardea cristata MÜLL. S. N. Suppl. 1766, 111 (based on Pl. Enl. 349).

HAB. Warm-temperate eastern North America, the whole of the West Indies and Middle America, and northern South America; north to Massachusetts (accidentally to Maine), Illinois, Kansas, etc.; south to Colombia and Guiana.

Colored phase.

Adult: Head and neck rich purplish maroon, with a glaucous cast, the feathers more chestnut beneath the surface; rest of the plumage uniform dark bluish plumbeous, the plumes with a glaucous cast, the maroon and plumbeous gradually blended. *In breeding season*, bill ultramarine-blue at the base, the end black; lores, eyelids, and base of bill, ultramarine-blue; iris pale yellow[1]; tibæ, tarsi, and toes black (AUDUBON). *In autumn*, bill light plumbeous on the basal half, the terminal half black; lores and eyelids very pale dull greenish; iris sulphur-yellow; legs and feet uniform pea-green, darker at the joints[2]. *Young:* Similar in color to the adult, but with less developed plumes, or with none at all; the head and neck more plumbeous.

[1] According to Mr. W. E. D. Scott (Bull. Nutt. Orn. Club, vi, 1880, p. 20), the color of the iris in specimens collected March 20, when they had just begun to breed, at Clearwater, Florida, was "deep lead-color" in eleven and "brown or hazel" in another.

[2] From a fresh specimen killed August 6, near Washington, D. C.

White phase.

Adult: Prevailing color white, with the ends of several outer primaries plumbeous, the plumage tinged here and there (in quantity varying with the individual) with delicate pale bluish pearl-gray. Colors of the soft parts as in the blue adult. *Young:* Similar to the adult, but with the plumes absent or but slightly developed. Bill pale lilaceous, becoming gradually black on terminal third, the lores, orbits, and base of under mandible pale apple-green; legs and feet uniform pea-green, lighter and brighter than in the blue phase; iris Naples yellow[1].

Pied, or intermediate, phase.

The plumage mixed white and plumbeous, in proportion varying with the individual, forming a series connecting unbrokenly the two extremes described above.

Total length, about 20.00–25.00 inches; expanse, 40.00–42.00; wing, 9.00–10.60; tail, 3.60–4.70; culmen, 2.70–3.30; depth of bill, .45–.55; tarsus, 3.15–4.00; middle toe, 2.35–2.60; bare portion of tibia, 2.00–2.90. Weight, about 11–16 ounces.

While there is evidently such a thing as an intermediate phase among fully adult birds, specimens representing it appear to be excessively rare. The young in blue plumage seems to be equally uncommon. It may be, however, that *all* birds become blue at some time of their existence, and it is quite certain that a very great majority of the young are white, only one unquestionably young bird in blue plumage having come under my notice.

The Little Blue Heron is a common bird during the latter part of summer, particularly during August, when (in 1875) Mr. E. W. Nelson found it exceedingly abundant near Cairo. Considerable numbers make their appearance along the Wabash River, at least as far north as Mt. Carmel, and doubtless it occurs generally throughout the State.

Subgenus Butorides Blyth

Butorides "Blyth, 1849," Bonap. Consp. ii, 1855, 128. Type, *Ardea javanica* Horsf.
Onisous Caban. J. f. O. iv, 1856, 343. Type, *Ardea virescens* Linn.

Gen. Char. Small Herons, of darkish, more or less variegated, colors, the pileum and occiput crested. Bill rather stout, decidedly longer than the tarsus. Mental apex reaching to a little less than half-way (in *B. brunnescens* exactly half-way) from the middle of the eye to the point of the bill, and to decidedly beyond the anterior end of the nostril; malar apex about even with the frontal, and decidedly posterior to the hinder end of the nostril (in *B. brunnescens* this point falls considerably short of the frontal one). Middle toe very nearly or quite equal to the tarsus (equal to it in *B. javanicus*, a little shorter in the American forms, the difference being most marked in *B. virescens*); outer toe scarcely or not at all longer than the inner (except in *B. brunnescens*); hallux about half the length of the middle toe; bare portion of tibia equal to or shorter than the hallux.

[1] Fresh colors of a specimen killed August 6, near Washington, D. C.

Pileum with a full crest of broadly lanceolate, compactly webbed feathers, these longer and more narrowly lanceolate on the occiput. Scapulars and interscapulars elongated and lanceolate in the adult, but not reaching the end of the tail (very much as in *Ardea*).

Ardea virescens Linn.

GREEN HERON.

Popular synonyms. "Schytepoke;" "Squawk;" Fly-up-the-Creek; Booby (parts of Florida); Crab-catcher (Jamaica); Martineta cangrejero (Mexico).

Ardea stellaris minima, CATESBY, Carolina, i, 1754, pl. 80 (adult).

Ardea virescens LINN. S. N. ed. 10, 1758, 144, No. 15 (based, in part, on the above); ed. 12, 1766, i, 238, No. 20.—WILS. Am. Orn. vii, 1813, 97, pl. 61.—NUTT. Man. ii, 1834, 63.—AUD. Orn. Biog. iv, 1838, 247, pl. 333; Synop. 1839, 264; Birds Am. vi, 1843, 105, pl. 367.—COUES, Key, 1872, 268; Check List, 1873, No. 457; Birds N. W. 1874, 522.—REICHENOW, J. f. O. 1877, 255.—A. O. U. Check List, 1886, No. 201.—RIDGW. Man. N. Am. B. 1887, 132.

Butorides virescens BONAP. Consp. ii, 1855, 128.—BAIRD, Birds N. Am. 1858, 676; Cat. N. Am. B. 1859, No. 493.—RIDGW. Nom. N. Am. B. 1881, No. 494.—COUES, Check List, 2d. ed. 1882, No. 663.—B. B. & R. Water B. N. Am. i, 1884, 50.

Crabier, de la Louisiane BUFF. Pl. Enl. 1770-84, pl. 909 (adult).

Crabier tacheté, de la Martinique BUFF. Pl. Enl. 912 (young).

Green Heron LATH. Synop. iii, 1785, 68.

Louisiana Heron LATH. t. c. 81.

Ardea ludoviciana GMEL. S. N. i, pt. ii, 1788, 630, No. 39 (based on Pl. Enl. 909).

? Blue Heron, var. *B.* LATH. Synop. iii, 1785, 75 (Queen Charlotte's Sound).

Ardea chloroptera BODD. Tabl. P. E. 1783, pl. 909.

Cancroma maculata BODD. t. c. pl. 912.

? Ardea virgata, GMEL S. N. i, pt. ii, 1788, 643.

HAB. The whole of temperate North America, West Indies, Middle America, and northern South America, to Venezuela; north to Ontario and Oregon; abundant both in the Pacific States and Eastern Province, but apparently wanting in the Middle Province; Bermudas.

SP. CHAR. *Adult:* Entire pileum, including occipital crest, glossy dark metallic bottle-green; rest of the head and neck, except throat and foreneck, rich chestnut, varying from a cinnamon shade to a fine purplish maroon; bare orbital space bordered posteriorly with greenish black, from the lower part of which projects backward, from the rictus, a short stripe of the same; below this, along the upper edge of the malar region, a narrow stripe of white, the lower malar feathers being mixed black and rufous, forming another stripe; th oat and foreneck, from chin to chest, white, marked with broad longitudinal dashes of dusky. Lower parts ash-gray, the lining of the wing somewhat spotted, and distinctly bordered, outwardly, with creamy white. Scapular plumes glaucous-plumbeous, with a green reflection in certain lights, the shafts white. Wing-coverts and rectrices brilliant metallic bottle-green, the former distinctly bordered, narrowly, with fulvous-white; these borders on the lesser-coverts, more rusty or fulvous; rectrices immaculate bottle-green; remiges and primary-coverts plumbeous, with a green reflection, the inner primaries and adjoining secondaries with narrow crescentic tips of white, the coverts with terminal deltoid spots of the same. Bill deep black, the lower mandible sometimes partly yellowish or greenish; lores and orbits varying from olive-green to bright yellow; iris gamboge-yellow; legs and feet olive-green or olive-yellow, the scutellæ more greenish; claws horn-color. *Young:* Pileum, including crest, as in the adult, but usually streaked with dark rusty anteriorly; sides of the head and neck dull dark rusty, indistinctly streaked with light ochraceous, or buff; lower parts white, tinged with buff, and striped with dusky. Back, scapulars, and rump uniform dull dusky-green, some of the feathers indistinctly bordered with

rusty; wings and tail as in the adult, but light borders to larger wing-coverts more ochraceous, and the two or three middle rows marked with median wedge-shaped dashes of the same. Bill lighter colored than in the adult, dull greenish prevailing, only the culmen dusky, the lower mandible mostly pale yellowish; legs and feet dull greenish yellow or olivaceous.

Length, about 15.00–22.50; expanse, 25.00–27.00. Weight, 6½ ounces (AUDUBON). Wing, 6.30–8.00; tail, 2.40–3.40; culmen, 2.00–2.55; depth of bill, .40–.60; tarsus, 1.75–2.15; middle toe, 1.65–1.95; bare portion of tibia, .70–.90.

This small and very handsome heron is perhaps the most generally distributed species of the family, being found along all streams which pass through or near wooded tracts. It comes from the south in April, and departs in September or October.

According to Mr. N. B. Moore (as quoted by Dr. Brewer in the *Water Birds of North America*), "this heron has its own peculiar manner of searching for its food, which, in some respects, differs from that of all the other kinds. It fishes from the shore or from a log, root, snag, or shelving rock, preferring not to wade into the water or to stand in it; still, on seeing a tempting morsel, it will quit its point of observation and walk into the water towards it. Its approach at such times is peculiar; though the Louisiana Heron seems occasionally to copy its style, except that the latter is constantly in the water at the time of fishing. The Green Heron, however, on seeing a fish, crouches low on its legs, draws back its head, crooks its neck, creeps slyly along, laying its tarsi almost down on the rock or the ground, carries the bill level with the top of the back, and, when near enough, darts the bill forward towards it, sometimes with such force as to topple forward a step or two. It seldom immerses its head in fishing, is always disposed to steal upon its prey in a sly, cat-like, crouching manner, remaining quite motionless for a long time, and often advancing so slowly and stealthily that even a keen-eyed observer would hardly perceive the motion. Its antipathy to and jealousy of its own species at the feeding-grounds is decided."

GENUS **NYCTICORAX** STEPHENS.

Nycticorax STEPHENS, Shaw's Gen. Zoöl. xi, 1819, 608. Type, *Ardea nycticorax* LINN.

GEN. CHAR. Bill comparatively short and thick, the culmen not longer than the tarsus, and equal to not more than four times the greatest depth of the bill; plumage of the young conspicuously different from that of the adult.

—E.

There are two strongly marked subgenera, which may be distinguished as follows:

a^1. Culmen about as long as the tarsus; gonys nearly straight, and lateral outlines of the bill slightly concave; tarsus but little longer than middle toe; scapulars normal (*i. e.* broad and blended) ..... **Nycticorax.**

a^2. Culmen much shorter than tarsus (only a little longer than middle toe); gonys convex, and lateral outlines of bill straight, or sometimes even perceptibly convex; tarsus much longer than middle toe; scapulars elongated, narrow (but not pointed), somewhat loose-webbed ..... **Nyctanassa.**

Subgenus **Nycticorax** Stephens.

Nycticorax Stephens, Shaw's Gen. Zoöl. xi, 1819, 608. Type, *Ardea nycticorax* Linn.
Nyctiardea Swains. Classif. B. ii, 1837, 354. Same type.

Subgen. Char. Medium-sized Herons of very short thick build, large, thick heads and short tarsi. The plumage exceedingly different in the adult and young, but the sexes similar. Adults with two or three exceedingly long, thread-like, white occipital plumes.

Bill very stout, the depth through the base being more than one fourth the culmen; the latter nearly straight for the basal two thirds, then gently curved to the tip; lower edge of the mandibular rami nearly straight; gonys nearly straight, very slightly ascending; maxillary tomium decidedly concave, with a very convex outline just forward of the rictus. Mental apex reaching more than half-way from the centre of the eye to the point of the bill, and to beyond the anterior end of the nostril; malar apex falling a little short of the frontal apex. Tarsi a little longer than the middle toe, its *scutellæ hexagonal in front;* lateral toes nearly equal, but the outer the longer; hallux less than half the middle toe; bare portion of tibia shorter than the hallux. Inner webs of two outer primaries distinctly emarginated near the end. Tail of twelve broad, moderately hard, feathers, as in the typical herons.

Nycticorax nycticorax nævius (Bodd.)

BLACK-CROWNED NIGHT HERON.

Popular synonyms. American Black-crowned Night Heron; Quok; Quâwk; Quâk; Quâ Bird; Inanite pinto elote (Mexico).

Ardea nævia Bodd. Tabl. P. E. 1783, 56 (ex Pl. Enl. 939).
Nyctiardea grisea var. *nævia* Allen, Bull. Mus. Comp. Zoöl. iii, 1872, 182.—Coues, Key, 1872, 269; Check List, 1873, No. 458; B. N. W. 1874, 523.
Nyctiardea grisea β *nævia* Ridgw. Orn. 40th Par. 1877.
Nyctiardea grisea nævia Ridgw. Nom. N. Am. B. 1881, No. 495.—Coues, 2d Check List, 1882, No. 664.
Nycticorax griseus nævius B. B. & R. Water B. N. Am. i, 1884, 55.
Nycticorax nycticorax nævius Zeled. Proc. U. S. Nat. Mus. viii, 1885, 113.—A. O. U. Check List, 1886, No. 202.—Ridgw. Man. N. Am. B. 1887, 133.
Ardea hoactle Gmel. S. N. i, pt. ii, 1788, 630.
Ardea cana Gmel. t. c. 643.
Ardea gardeni Gmel. t. c. 645 (based on *Gardenian Night Heron* of Pennant and Latham).
Nyctiardea gardeni Baird, B. N. Am. 1858, 673; Cat. N. Am. B. 1859, No. 495.
Ardea discolor Nutt. Man. ii, 1834, 54.

Nycticorax americanus BONAP. Comp. List, 1838, 43.
Nycticorax vulgaris D'ORB. Ois. Cuba, 1839, 208.
Nycticorax griseus (part) REICHEN. J. f. O. 1877, 237.

HAB. The whole of temperate and tropical America, from British America to Chili and the Falkland Islands. Part of the West Indies; Bermudas.

SP. CHAR. *Adult:* Pileum, scapulars, and interscapulars, glossy blackish bottle-green; forehead, postocular, malar, and gular regions, and median lower parts, white; lateral lower parts and neck, except in front, pale ash-gray, with a slight lilaceous tinge; wings, rump, upper tail-coverts and tail, deeper ash-gray. Occipital plumes pure white. Bill black; lores and orbits yellowish green; iris bright red; legs and feet yellow, claws brown. (AUDUBON.)[1] *Immature:* Similar to the adult, but scapulars and interscapulars like the wings, and the white of the forehead obscured by the blackish of the crown; the colors generally more sombre, with neck and lower parts more decidedly ashy. *Young:* Above, grayish brown, with more or less of a cinnamon cast, especially on the remiges, each feather marked with a median tear-shaped or wedge-shaped stripe of white, the remiges with small white terminal spots; rectrices plain ash-gray. Sides of the head and neck, and entire lower parts, striped longitudinally with grayish brown and dull white; chin and throat plain white medially. Bill light apple-green, the upper half of the maxilla blackish, the mandible with a tinge of the same near the end; lores light apple-green; eyelids similar, but lighter, more yellowish, their inner edge black; iris dark chrome-yellow or dull orange; legs and feet light yellowish apple-green; claws grayish horn-color.[2]

Length about 24.00–26.00; expanse, 44.00. Weight, 1 lb. 14 oz. (AUDUBON). Wing, 11.00–12.80; tail, 4.20–5.30; culmen, 2.80–3.10; depth of bill, .70.–85; tarsus, 3.10–3.40; middle toe, 2.65–3.10; bare portion of tibia, .90–1.40.[3]

SUBGENUS *Nyctanassa* STEJNEGER.

Nycticherodius REICH. Syst. Av. 1852, p. xvi (*nec Nycterodius* MACGILLIV. 1842). Type, *Ardea violacea* LINN.
Nyctanassa STEJN. Proc. U. S. Nat. Mus. x, sig. 19, Aug. 3, 1887, 295, foot-note. Same type.

SUBGEN. CHAR. Medium-sized Herons, of short, thick build; the bill extremely thick and stout, with both outlines strongly convex; the legs long and slender; the dorsal plumes much elongated and very narrow, reaching beyond the tail; the occiput (in adult) with several extremely long, linear white feathers.

Bill short and very stout, the culmen curved regularly from the base, the gonys decidedly convex and very much ascending;[4] maxillary tomium almost perfectly straight throughout, but appreciably concave anteriorly, with a barely perceptible convexity toward the base; mandibular tomium nearly straight, but perceptibly concave anteriorly.[5] Mental

[1] A captive specimen had the iris and legs colored as follows, from the last of March to June 30th, the only portion of the year when it was under observation: Iris, deep Chinese orange; legs and feet uniform light buffy flesh-color or pale salmon, not very different from the (evanescent) color of sides of neck, without the slightest tinge of olive or yellow.

[2] From a specimen killed August 13, 1879, near Washington, D. C.

[3] Extremes of thirteen examples from North and Middle America.

[4] The lower outline of the bill is, in fact, more decidedly convex than the upper.

[5] We find considerable variation among individuals in respect to the outlines; thus, a specimen (female adult, No. 2759, Mus. R. R.) from Illinois has the mandibular tomium exactly straight to near the end, where it gradually ascends to the tip, thereby producing a very slight subterminal concavity; in No. 2758, another adult female from the same locality, it is decidedly *convex* in the middle portion; while in an adult male, from Mazatlan (No. 58811), it is decidedly *concave* at the same place—so much so, in fact, that a space is left between it and the upper tomium, on each side, when the bill is closed tight! These discrepancies, however, do not affect the general form of the bill, which is eminently characteristic.

apex less than half-way from centre of eye to end of bill, and about even with anterior end of nostril; apex of malar region a little posterior to the frontal apex. Tarsi long and slender, exceeding the middle toe by more than half the length of the latter; outer toe decidedly longer than inner; hallux slightly longer than the first phalanx of the middle toe; bare portion of tibia as long as the outer toe; tarsal scutellæ with a tendency to form transverse plates on the upper half, in front; claws exceedingly short, strongly curved, and blunt. Inner web of two outer primaries emarginated near the end; tail of twelve broad, moderately hard feathers; interscapular plumes greatly elongated (extending beyond the tail), narrow, the plumulæ thread-like and soft, and separated outwardly. Occipital plumes linear, flattened, longer than the head and bill, when fully developed, half a dozen or more in number, and graduated in length.

Nycticorax violaceus (Linn.)

YELLOW-CROWNED NIGHT HERON.

Popular synonyms. White-crowned Night Heron; Pedrete de márcara (Mexico).

Ardea stellaris cristata americana CATESBY, Carolina, 1754, pl. 79 (adult).
Bihoreau de Cayenne BUFF. Pl. Enl. 1770–84, pl. 899 (adult).
Ardea violacea LINN. S. N. ed. 10, i, 1758, 143, No. 12 (ex Catesby, l. c.); ed. 12, i, 1766, 238, No. 16.—WILS. Am. Orn. viii, 1814, 26, pl. 65.—NUTT. Man. ii, 1834, 52.—AUD. Orn. Biog. iv, 1838, 290, pl. 336; Synop. 1839, 262; Birds Am. vi, 1843, 89, pl. 364 (adult and young).
Nyctiardea violacea SWAINS. Classif. B. ii, 1837, 354.—COUES, Key, 1872, 269; Check List, 1873, No. 459.
Nycherodius violaceus REICHENB. Syst. Av. 1851, p. xvi.—BAIRD, Birds N. Am. 1858, 679; Cat. N. Am. B. 1859, No. 496.—RIDGW. Nom. N. Am. B. 1881, No. 496.—COUES, Check List, 2d ed. 1882, No. 665 (*Nycterodius*).—B. B. & R. Water B. N. Am. i, 1884, 61.
Nycticorax violaceus VIG. Zool. Jour. iii, 1827, 446.—A. O. U. Check List, 1886, No. 203.—RIDGW. Man. N. Am. B. 1887, 133.
Cayenne Night Heron LATH. Synop. iii, 1785, 56 (quotes Pl. Enl. 899).
Yellow-crowned Night Heron LATH. t. c. 80.
Ardea cayennensis GMEL. S. N. i, pt. ii, 1788, 626, No. 31 (based on Pl. Enl. 899).
Ardea sexsetacea VIEILL. Enc. Meth. iii, 1823, 1130 (Reichenow).
Ardea callocephala WAGL. Syst. Av. 1827, Ardea, sp. 34.

HAB. Warm-temperate eastern North America, West Indies, Middle America, and northern South America, breeding north to southern Illinois and Indiana. On Atlantic coast north to Pennsylvania (rare). West to Colorado, south to western Ecuador and the Amazonian regions. Bermudas.

SP. CHAR. *Adult.* Forehead, middle of the crown, long occipital plumes, and a large longitudinal patch from the rictus to the ears, pure white;[1] rest of the head deep

[1] In living and freshly killed specimens the forehead is a delicate creamy sulphur-yellow color; but this fades perceptibly in a very short time after death, and finally disappears entirely. Audubon (Birds of America, Vol. VI., p. 91) says, however, that this is characteristic of the breeding season, and "disappears at the approach of autumn, when the bird might with all propriety be named the White-crowned Heron." In view of the fact that this beautiful yellow color is seldom if ever to be seen in dried skins, the term "yellow-crowned" is a decided misnomer; and since it is thus calculated to mislead the student, we prefer the name "white-crowned," and have, on previous occasions, adopted the latter in this work. In many skins the white of the forehead is tinged more or less with ochraceous, or cinnamon-brown; but this is without much doubt an actual stain caused by contact with the slimy coating of leaves of aquatic plants, ferruginous mud, etc.

black. Plumage in general, clear bluish gray, or cinereous, lighter beneath (the degree of blueness probably depending on the age of the bird); all the feathers of the upper surface marked with a median stripe of black; the secondaries and rectrices dark plumbeous, bordered with a lighter shade of the same; primaries plain bluish plumbeous. Bill deep black, the lower basal portion of the mandible, in some specimens, greenish yellow; lores and eyelids greenish yellow; iris pale orange; legs dull yellowish green, the large scutellæ and the claws dusky.[1]

Young. Above, dark sooty grayish brown, sometimes of a slightly olive cast, the feathers of the pileum and wings (in youngest individuals the entire upper surface?) marked with median streaks of white or pale buff; these streaks assuming on the wing-coverts a narrowly cuneate form. Lower parts soiled whitish, striped with brownish gray. "Bill greenish black, the lower and basal part of the lower mandible greenish yellow, as are the eyelids and bare space before the eye. Iris pale orange. Legs and feet dull yellowish green, the scutella and scales in front, as well as the claws, dusky." (AUDUBON.) Length, about 23.00–25.00; expanse, 40.00–45.00; weight, 1 lb. 7 oz. to 1 lb. 9 oz. (AUDUBON.) Wing, 10.50–12.65; tail, 4.20–5.10; culmen, 2.50–3.00; depth of bill, .70–.92; tarsus, 3.10–4.20; middle toe, 2.20–2.55; bare portion of tibia, 1.60–2.40.

The Yellow-crowned Night Heron occurs during summer throughout at least the southern third of Illinois, though of course only in such localities as are suited to it. These consist of timbered swamps, where the principal food of the species, consisting of crawfish, frogs, and the smaller reptiles, is to be found in abundance. It first became known to the writer as an Illinois bird through Mr. Samuel Turner, of Mt. Carmel, who obtained specimens of the bird and its eggs in the Coffee Flats, a few miles south of that place. At Monteur's Pond, about eight miles east of Vincennes, Indiana, the writer found it to be much the most numerous species of heron, far outnumbering all other kinds together, during several visits there, in different years. Many nests were found, but all inaccessible except by special and in most cases extraordinary effort, being built not only high up in the tallest sweet gum and oak trees but far out upon the branches.

[1] In an adult female shot from the nest, at Wheatland, Indiana, April 27, 1881, the bill and naked lores were wholly slate-black, the eyelids similar, but tinged with green anteriorly; iris Mars-orange; legs pale olive-buff, the large scutellæ of tarsus and toes deep brownish. In the adult male in spring, according to Audubon, the unfeathered parts are colored as follows: "Bill black. Iris reddish-orange; margins of eyelids and bare space in front of the eye dull yellowish green. Tibia, upper part of the tarsus, its hind part and the soles, bright yellow; the scutellæ and scales, the fore part of the tarsus, the toes, and the claws, black."

Subfamily BOTAURINÆ.—The Bitterns.

Genus BOTAURUS Hermann.

Botaurus Hermann, Tabl. Affin. Anim. 1783, 135. Type, *Ardea stellaris* Linn.

Gen. Char. Tail-feathers ten, very short and soft; outer toe shorter than inner; claws lengthened, slightly curved.

Two really distinct genera are comprised in the so-called genus *Botaurus*, as above defined, but in order to be consistent in the classification and nomenclature of this work we are compelled to follow the A. O. U. Check List and call them subgenera. They may be distinguished by the following characters:

a.[1] Size large (wing more than 9.50 inches); sexes alike in coloration, and young not obviously different in color from adults.....**Botaurus.**

a.[2] Size very small (wing less than 6.00 inches); sexes more or less different in color (in North American species, at least), and young obviously different from adults.....**Ardetta.**

Subgenus Botaurus Hermann.

Botaurus Hermann, Tabl. Affin. Anim. 1783, 135. Type, *Ardea stellaris* Linn.
Butor Swains. Classif. B. ii, 1837, 354. Same type.

Gen. Char. Medium-sized, or rather large, Herons, with the plumage much mottled or striped with different shades of brown and ochraceous (the plumage essentially the same in both sexes and at all seasons); the plumage, particularly of the lower neck in front, exceedingly soft and full, and destitute of any ornamental plumes; the bill comparatively small and short (shorter than the middle toe); the tibiæ almost completely feathered, and the claws very long and but slightly curved. Tail, of ten short, soft feathers, slightly rounded or nearly even.

Bill gradually tapering from the base to the point, the upper outline more convex than the lower, the gonys very slightly convex and gently ascending, the lower edge of the maxillary rami perfectly straight; mental apex extending forward about half-way from the centre of the eye to the point of the bill, and slightly in advance of the anterior end of the nostril; malar apex falling far short of that of the frontal feathers. Toes very long, the middle one considerably exceeding the bill and almost equaling the tarsus; *inner toe decidedly longer than the outer;* hallux about half the middle toe; claws very long (that of the hallux nearly equal to its digit), and but slightly curved; bare portion of the tibia shorter than the hallux. Tarsi with large regular scutellæ in front.

Botaurus lentiginosus (Montag.)

AMERICAN BITTERN.

Popular synonyms. Stake-driver; Post-driver; Thunder-pump; Water-belcher; Bog-bull; Bog-bumper; Mire-drum; Look-up; Indian hen; Indian pullet, etc.

Ardea mugitans Bartr. Travels, 1792, (*nomen nudum*).
Botaurus mugitans Coues, Check List, 2d ed. 1882, No. 666.
Ardea lentiginosa Montague, Orn. Dict. Suppl. 1813.—Sw. & Rich. F. B.-A. ii, 1831, 374.—Nutt. Man. ii, 1834, 60.—Aud. Synop. 1839, 263; Birds Am. vi, 1843, 94, pl. 365.
Botaurus lentiginosus Stephens, Shaw's Gen. Zoöl. xii, 1819, 596.—Baird, Birds N. Am. 1858, 674; Cat. N. Am. B. 1859, No. 492.—Reichenow, J f. O. 1877, 248.—Ridgw. Nom. Am. B. 1881, No. 497; Man. 1887, 126.,—A. O. U. Check List, 1886, No. 190.
Ardea hudsonias Meerem, Ersch. Grub. Ency. v, 1820, 175.
Ardea minor Wils. Am. Orn. viii, 1814, 35, pl. 65, fig. 3.
Botaurus minor Boie, Isis, 1826, 979.—Coues, Key, 1872, 269; Check List, 1873, No. 460; Birds N. W. 1874, 523.
Butor americanus Swains. Classif. B. ii, 1837, 354.
Ardea mokoko Vieill. Nouv. Dict. xiv, 1817, 440.
Botaurus adspersus "Cab.," Bonap. Consp. ii, 1857, 156.
Ardea stellaris canadensis Edwards, Nat. Hist. pl. 136.
Le Butor de la Baye de Hudson Edwards, l. c.
Botaurus Freti-Hudsonis Briss. Orn. v, 1760, 450, pl. 37, fig. 1.
Ardea stellaris Varietas Forst. Philos. Trans. lxii, 1772, 410, No. 38 (Severn R.).
Bittern Var. A. Lath. Synop. iii, 1785, 58.
Ardea stellaris B. Lath. Ind. Orn. ii, 1790, 680, No. 18 B. (ex Edwards, pl. 136).

Hab. The whole of temperate and tropical North America, north to latitude about 60°, south to Guatemala. Cuba; Jamaica; Bermudas. Occasional in Europe (18 British records).

Sp. Char. *Adult:* Ground-color of the plumage ochraceous-buff; but this densly mottled and finely sprinkled above with reddish brown and blackish, the latter color prevailing on the dorsal and scapular regions, where the feathers have lighter edges, the buff prevailing on the wing-coverts, where the variegation consists of a finer and sparser sprinkling of the dusky and brown; on the tertials and ends of the secondaries, the reddish (a sort of cinnamon shade) forms the ground-color, and is thickly sprinkled with irregular dusky dottings and zigzags; pectoral tufts nearly uniform dark brown, the feathers with broad lateral borders of clear yellowish ochraceous. Pileum rusty brown, darker anteriorly, changing gradually backward into the greenish olive-gray of the nape; sides of the head and neck yellowish ochraceous; a malar stripe of dark rusty, changing posteriorly into a very conspicuous stripe of blue-black (or in some specimens dull grayish) down each side of the neck; chin and throat white, with a very narrow median dusky streak, suffused with ochraceous; foreneck pale buff, with sharply defined stripes of cinnamon-brown edged with a black line; lower parts pale buff, with narrower brownish stripes; tibiæ and crissum plain light creamy buff; primary-coverts and primaries dark slate, tipped with pale reddish ochraceous, finely, but not densely, sprinkled with dusky. Upper mandible olivaceous-black, the tomium (broadly) lemon-yellow; lower mandible pale lemon-yellow, deeper basally, with a stripe of dusky brownish along the posterior part of the tomium; lores and eyelids lemon-yellow, the former divided longitudinally by a median stripe of dusky olive, from the eye to the base of the upper mandible; iris clear, light sulphur-yellow next the pupil, shading exteriorly into orange-brownish, this encircled narrowly with black; legs and feet bright yellowish green; claws pale brown, dusky toward points.[1] *Young:* Similar to the adult, but more reddish, the mottling coarser, and with a tendency to form ragged transverse bars, especially on the posterior upper parts.

[1] Colors of fresh specimens (male and female) killed along the Truckee River, Nevada, Nov. 18, and Dec. 11, 1867.

Length, about 24.00–28.00; expanse, 37.00–45.00; weight about 1½ lbs. (AUDUBON); wing, 9.80–12.00; tail, 3.10–4.40; culmen, 2.50–3.20; depth of bill .50–.65; tarsus, 3.10–3.85; middle toe, 2.90–3.60; bare portion of tibia, 1.00–1.35.[1]

SUBGENUS **Ardetta** GRAY.

Ardeola BONAP. Synopsis, 1828 (teste GRAY, Gen. & Subg. 1855, 113). Type, *Ardea exilis* GMEL. (Not of Boie, 1822!)

Ardetta GRAY, List of Genera, App. 1842, 13. Type, *Ardea minuta* LINN.

Erodiscus GLOGER, Handb. i, 1842, 410. Same type.

"*Ardeiralla*" (1855) VERREAUX (teste HARTL. Orn. Westafr. p. 224). Type, *Ardea sturmi* WAGL.

SUBGEN CHAR. Extremely small (the smallest of) herons, or miniature bitterns; differing from the true bitterns chiefly in their diminutive size, and in the fact that the sexes differ in color.[2]

Although only two species of *Ardetta* are known to occur in North America (with one additional species in South America), there are various species in other parts of the world.

The two North American species differ as follows:

a^1. Primaries tipped with cinnamon-rufous or pale cinnamon; adults with a distinct narrow stripe of buff along each side of back.....**B. exilis.**

a^2. Primaries without rufous or cinnamon tips; adults without trace of lighter stripe along sides of back.....**B. neoxenus.**[3]

This species, which was originally discovered in southern Florida, has also been taken in Ontario, Canada, and may possibly occur in Illinois. It is very different in color from *B. exilis*, the prevailing colors being black and rich chestnut.

Botaurus exilis (Gmel.)

LEAST BITTERN.

Popular synonyms. American Least Bittern; Tortoise-shell Bird, or Tortoise-shell Bittern (Jamaica); Little Yellow Bittern; Ardeola and Pescadora (Mexico).

Little Bittern PENN. Arct. Zoöl. ii, 1785, 453, No. 359 (part).

Minute Bittern LATH. Synop. iii, 1785, 66 (Jamaica); = female ad.).

Ardea exilis GMEL. S. N. i, pt. ii, 1788, 645, No. 83 (based on the *Minute Bittern* of LATH. t. c.).—WILS. Am. Orn. viii, 1814, 37, pl. 65, fig. 4.—NUTT. Man. ii, 1834, 66.—AUD. Orn. Biog. iii, 1835, 77; v, 1839, 606, pl. 210; Synop. 1839, 263; Birds Am. vi, 1843, 100, pl. 366.

Ardetta exilis GUNDL. J. f. O. 1856, 345.—BAIRD, B. N. Am. 1858, 673; Cat. N. Am. B. 1859, No. 491.—RIDGW. Nom. N. Am. B. 1881, No. 498.—COUES, Check List 2d ed. 1882, No. 667.

Botaurus exilis REICHEN. J. f. O. 1877, 244.—A. O. U. Check List, 1886, No. 134.—RIDGW. Man. 1887, 127.

?*Ardea spadicea* GMEL. t. c. 641 (Reichenow).

[1] From measurements of twenty-five *adult* specimens.

[2] We can find no other difference in form or proportion between *Botaurus* and *Ardetta*. In the sexed specimens of *A. involucris* which we have been able to examine there is no sexual difference of plumage. The sex of the single supposed female, however, may have been incorrectly determined.

[3] *Ardetta neoxena* COBY, Auk, iii, Apr. 1886, 262.—*Botaurus neoxenus* RIDGW. Man. N. Am. B. 1887, 127.

HAB. The whole of temperate North America, north to the British Provinces; West Indies, Middle America, and northern South America, to Brazil. Bermudas.

SP. CHAR. *Adult male:* Pileum, including slight occipital crest, with entire back, scapulars, rump and tail, glossy greenish black, the outer webs of the outermost row of scapulars edged with pale buff, forming a narrow longitudinal stripe. Sides of the head and neck bright ochraceous, deepening into reddish chestnut on the nape; chin, throat, and foreneck paler, the first sometimes whitish, with a median series of dusky and yellowish buff dashes; the foreneck and chest faintly striped with white and pale orange-buff, the latter predominating; on each side the breast a patch of maroon-dusky, the feathers tipped with paler and suffused with blackish, forming tufts of large loose feathers, partly concealed by the large feathers of the chest; lower parts whitish, washed with pale creamy-buff. Carpal region, greater wing-coverts, lower webs of tertials and tips of primary-coverts, secondaries, and innermost primaries, rich cinnamon-rufous; large area covering middle wing-covert region, pale ochraceous or buff; remiges and primary-coverts blackish slate, except at tips. "Bill dark olive-brown above, edge of upper mandible and bare frontal space yellow; lower mandible pale yellow, inclining to flesh color; iris yellow; feet dull greenish yellow; claws brown." (AUDUBON.) *Adult female:* Similar to adult male, but the greenish-black replaced by brown (varying from umber-drab to cinnamon; the pileum darker, usually quite dusky); the buff stripe along outer edge of scapular region much broader, and the stripes on the foreneck usually more distinct. *Young:* Similar to the adult female, but feathers of the back and scapulars tipped with buff, and stripes on foreneck usually still more distinct. *Downy young:* Above uniform buff, or brownish buff, beneath dull white.

Total length, about 12.00–13.50 inches; extent of wings, 17.00–18.00; wing, 4.80–5.25; tail, 1.60–2.10; culmen, 1.60–1.90; depth of bill at base, .28–.35; tarsus, 1.50–1.75; middle toe, 1.40–1.60; bare portion of tibia, .45–.50.

The Least Bittern, although comparatively seldom seen, is an abundant summer resident in marshy localities throughout Illinois, but keeps well hidden among the tall sedges, cat-tails, and other aquatic plants among which it dwells, often permitting itself to be almost brushed against before it will take wing.

Mr. Nelson says it breeds abundantly in the marshes and sloughs of the northeastern counties, where it arrives about May 1, and breeds in June. He always found its nest supported, at from two to three feet above the water, by the surrounding rushes, and describes it as a very frail structure—a thin platform from one to three inches thick, with scarcely depression enough in the center to prevent the eggs from rolling out. Small dry pieces of reeds are used in building it. The eggs are usually from two to six in number. If approached while on the nest, the female generally steps quietly to one side; but if suddenly surprised, takes to flight. Each nest is usually placed by itself, but sometimes six or eight may be found in close proximity.

—F.

Order **ANSERES**.—the Lamellirostral Swimmers.

Characters. Lamellirostral swimming birds, with straight bills, short legs (always shorter than the wing), the tibiæ usually completely feathered, and scarcely free from the body; hallux well developed, though usually small, never absent, Reproduction præcocial, and young ptilopædic; eggs numerous and unmarked, with a hard, usually very smooth, shell.

Bill flattened terminally, and provided at the tip with a more or less hooked nail or "unguis", and along the edges with distinct vertical lamellæ or strainers (more tooth-like in the subfamily *Merginæ*).

The Order *Anseres* is composed mainly of a single family (*Anatidæ*),[1] which, however, includes very numerous genera and species. The order is represented in every portion of the globe, but most numerously in the northern hemisphere. It is allied most nearly to the orders *Phœnicopteri* (Flamingoes) and *Palamedeæ* (Screamers), the former Tropicopolitan, the latter confined to the central portion of the Neotropical Region.

[1]Extralimital families are (1) *Anserantidæ* (Semipalmated Geese), and (2) *Cereopsidæ* (Cape Barren Geese), both peculiar to Australia.

Family **ANATIDÆ**.—The Swans, Geese, and Ducks.

Characters. The same as those of the Order. (See Volume I, page 45.)

The family *Anatidæ*, which includes all the North American *Anseres*, constitutes so well-marked and natural a group of birds as to need no further definition than has already been given. The species, being very numerous, naturally fall into several more or less well-defined groups, which have been accorded the rank of subfamilies. These, however, grade so insensibly into one another that it is extremely doubtful whether this rank can be maintained for them.[1] Birds of this family are found in every known part of the world; but they abound most in the northern hemisphere, particularly in boreal regions. The North American representatives may, for convenience of classification, be divided into four tolerably well-defined groups, as follows:

Cygninæ. Neck extremely long (as long as or longer than the body); size very large; bill long as or longer than the head, the edges parallel, the nail small; tarsi shorter than middle toe ;lores naked; tail-feathers 20–24; color chiefly or entirely white (except in *Chenopis atrata*, the Black Swan, of Australia).

Anserinæ. Neck moderately long (shorter than the body); size variable (usually medium, never very large); bill not longer than the head, tapering to the end, which is chiefly occupied by the large, broad nail; tarsus longer than the middle toe; lores feathered; tail-feathers 14-20; color extremely variable.

Anatinæ. Neck moderately long (shorter than the body); size variable (usually small or medium); bill extremely variable; tarsus shorter than the middle toe; lores usually feathered; tail-feathers 14–18; color extremely variable.

Merginæ. Similar to the *Anatinæ*, but bill narrow, with tooth-like processes instead of fine lamellæ.

The genera which have representatives within our limits may be distinguished by the following characters:

[1] "The whole family *Anatidæ* forms, as to structural features, a very homogeneous group, and intermediate links are everywhere to be found. Thus it is very difficult to define the subfamilies anatomically, and to give the structural differences by which they are to be separated, so that I find it not improbable that an exact investigation, based on a more abundant material than I can at present procure, will reduce the subfamilies to groups of lower rank." Stejneger, in Proc. U. S. Nat. Mus., Vol. 5, 1882, pp. 174, 175.

Subfamily **CYGNINÆ**.—The Swans.

1. **Olor.** [The] largest of the American *Anatidæ* (total length more than three feet); color of the plumage entirely pure white in adults, grayish in young. (Page 105.)

Subfamily **ANSERINÆ**.—The Geese.

A. Serrations on cutting-edge of upper mandible visible from the outside through a conspicuous "grinning space;" bill and feet light colored.

2. **Chen.** Bill very stout, its depth through the base equal to much more than half the length of the culmen; color of adults white, with blackish primaries, or else with head and part of neck white, the wing-coverts bluish gray. (Page 110.)

3. **Anser.** Bill weaker and more depressed, its depth through the base less than half the length of the culmen; color never white, nor with white head, nor with bluish gray wing-coverts. (Page 115.)

B. Serrations on edge of upper mandible visible only near the angle of the mouth, the sides of the bill without "grinning space;" bill and feet blackish.

4. **Branta.** Head partly or wholly black; upper and under tail-coverts white. (Page 118.)

Subfamily **ANATINÆ**.—The Ducks.

A. Lores densely feathered.
a. Tail normal.
b. Hind toe without a distinct membranous lobe or "flap."
c. Bill not spatulate.
d. Tail-feathers narrow and pointed at tip.
e. Tail graduated for less than one third its total length (or else consisting of only 14 feathers) and culmen shorter than middle toe without claw.

5. **Anas.** (Page 126.)

e[1]. Tail graduated for more than one third its total length, consisting of 16 feathers, and culmen longer than middle toe, without claw.

6. **Dafila.** (Page 146.)

d[1]. Tail-feathers broad and rounded at tips.

7. **Aix.** (Page 152.)

c[1]. Bill spatulate (much widened toward the end).

8. **Spatula.** (Page 150.)

b[1]. Hind toe with a broad membranous lobe or "flap."
c. Feathering on lores or forehead not reaching beyond posterior border of nostril.
d. Graduation of tail less than length of bill from nostril.

9. **Aythya.** (Page 156.)

d[1]. Graduation of tail much more than length of bill from nostril.
e. Distance from tip of bill to loral feathering less than graduation of tail.
f. Distance from anterior end of nostril to loral feathers equal to or greater than width of bill at base.
g. Distance from anterior end of nostril to tip of bill much less than from same point to loral feathers; tail less than twice as long as tarsus.

10. **Glaucionetta.** (Page 165.)

g^1. Distance from anterior end of nostril to tip of bill much greater than from same point to loral feathers; tail more than twice as long as tarsus.

11. **Charitonetta.** (Page 170.)

f^1. Distance from anterior end of nostril to loral feathering much less than width of bill at base.

g. Distance from posterior end of nostril to loral feathers equal to or greater than length of nostril; anterior outline of loral feathering strongly convex.

12. **Histrionicus.** (Page 171.)

g^1. Distance from anterior end of nostril to loral feathers less than half the length of the nostril; anterior outline of loral feathering forming a nearly straight line, running obliquely backward and downward from near nostril to corner of mouth.

13. **Clangula.** (Page 173.)

e^1. Distance from tip of bill to loral feathers greater than graduation of tail.

14. **Oidemia.** (Page 179.)

c^1. Feathering of forehead or lores reaching anteriorly to or beyond posterior end of nostril.

15. **Somateria.** (Page 175.)

a^1. Tail abnormal, its feathers narrow, with very stiff shafts, their base scarcely hidden by the very short coverts.

16. **Erismatura.** (Page 184.)

SUBFAMILY **MERGINÆ**.—THE MERGANSERS.

A. Serrations of mandible conspicuously tooth-like, and strongly inclined backward at tips.

17. **Merganser.** (Page 187.)

B. Serrations of mandible short, blunt, and not distinctly inclined backward at tips.

18. **Lophodytes.** (Page 190.)

SUBFAMILY **CYGNINÆ**.—THE SWANS.

GENUS **OLOR** WAGLER.

Olor WAGL. Isis, 1832, 1234. Type, *Anas cygnus* LINN.

GEN. CHAR. Neck very long (longer than the body); bill longer than the head (commissure longer than the tarsus), widening slightly to the end, the edges straight; basal portion of the bill covered by a soft skin extending over the lores to the eye, the upper outline running nearly straight back from the forehead to the upper eyelid, the lower running from the eye obliquely downward, in a nearly straight line, to the rictus. Nostrils situated a little posterior to the middle of the maxilla, and quite near the culmen; no trace of a knob or caruncle at base of the bill. Lower portion of the tibia bare; tarsus much shorter than the middle toe (but little longer than the inner), much compressed, covered with hexagonal scales which become smaller on the sides and behind. Hind toe small, much elevated, the lobe narrow. Tail very short, rounded or graduated, of 20 to 24 feathers. Wings rounded, the second and third quills longest; primaries scarcely reaching beyond the ends of the secondaries. Color entirely white, the sexes alike; young pale grayish.

The two North American species of *Olor* may be readily distinguished by the following characters:

COMMON CHARACTERS. *Adults* with whole plumage pure white, the head often stained with rusty; bill either entirely black, or black and yellow; iris dark brown; feet blackish. *Young* ashy, sometimes tinged with brownish, the bill flesh-color (or at least partly of this color) and feet grayish or whitish.

1. **O. columbianus.** Tail-feathers usually 20; bill not longer than the head, the anterior end of the nostrils considerably anterior to the middle of the maxilla; naked loral skin usually with a yellowish oblong spot.
2. **O. buccinator.** Tail-feathers usually 24; bill longer than the head, the anterior end of the nostrils reaching to about the middle of the maxilla; naked loral skin entirely black. Size considerably larger.

They are both found, at one time or another, entirely across the continent, though *O. buccinator* is rare on the Atlantic coast.

Olor buccinator (Rich.)

TRUMPETER SWAN.

Cygnus buccinator RICH. F. B.-A. ii, 1831, 464 (Hudson Bay).—NUTT. Man. ii, 1834, 370.—AUD. Orn. Biog. iv, 1838, 536; v, 1839,114, pls. 406, 376; Synop. 1839, 74; B. Am. vi, 1843, 219, pl. 382, 383.—BAIRD, B. N. Am. 1858, 758; Cat. N. Am. B. 1859, No. 562.—COUES, Key, 1872, 281; Check List, 1873, No. 476; 2d ed. 1882, No. 688; Birds N. W. 1874, 544.—RIDGW. Orn. 40th Par. 1877, 619.

Olor buccinator WAGL. Isis, 1732, 1234.—RIDGW. Nom. N. Am. B. 1881, No. 589; Man. N. Am. B. 1887, 120; Proc. U. S. Nat. Mus. iii, 1882, 216.—B. B. & R. Water B. N. Am. i 1884. 430,—A. O. U. Check List, 1886, No. 181.

Cygnus pasmorei HINCKS, Proc. Linn. Soc. viii, 1864, 1 (Toronto); P. Z. S. 1868, 211.—MOORE, P. Z. S. 1867, 8 (critical).

HAB. Chiefly the interior of North America, from the Gulf coast to the Fur Countries, breeding from Iowa and Dakota northward; west to the Pacific coast, but rare or casual on the Atlantic. Accidental in England.

SP. CHAR. Tail usually of 24 feathers; bill longer than the head. *Adult:* Plumage entirely pure white, the head, sometimes the neck also, or even the entire lower parts, tinged with rusty. Bill, naked lores, legs, and feet, uniform deep black, the "outer lamellate edges of the lower mandible and the inside of the mouth flesh-color," (AUDUBON); iris brown. *Young:* "In the winter the young has the bill black, with the middle portion of the ridge, to the length of an inch and a half, light flesh-color, and a large elongated patch of light dull purple on each side; the edge of the lower mandible and the tongue dull yellowish flesh-color. The eye is dark brown. The feet are dull yellowish brown, tinged with olive; the claws brownish black, the webs blackish brown. The upper part of the head and the cheeks are light reddish brown, each feather having toward its extremity a small oblong whitish spot, narrowly margined with dusky; the throat nearly white, as well as the edge of the lower eyelid. The general color of the upper parts is grayish white, slightly tinged with yellow; the upper part of the neck marked with spots similar to those on the head." (AUDUBON.)

Total length, about 58.50 to 68.00 inches; extent, about 8.00 to nearly 10.00 feet; wing, 21.00–27.25 inches; culmen (from frontal feathers) 4.34–4.70; tarsus, 4.54–4.92; middle toe 6.00–6.50; weight, of adults, about 28 to nearly 40 lbs.

The arrangement of the trachea in this species is very different from that in *O. columbianus*, in having, besides the horizontal bend, a vertical flexure, occupying a prominent protuberance on the anterior portion of the dorsal aspect of the sternum.

The Trumpeter Swan is chiefly a transient visitor to Illinois, but undoubtedly once bred within the State, since it

is now known to do so in Iowa. It is said to occasionally winter in the southern counties, where migrating flocks arrive from the South about, or a little after, the middle of March, and return from the North about the last of October.

It is a grand bird, weighing often as much as thirty pounds and sometimes nearly forty, with a spread of wings of eight to nearly ten feet—much greater than any other American bird excepting only the Condor and the California Vulture, both of which are considerably inferior in weight. Its eggs, averaging about 4.46 by nearly 3.00 inches in size, are so large that one of them is said to be a sufficient meal for a moderate man. Although so large, it is very swift of wing, and Hearne states that in his opinion it is more difficult to shoot when flying than any other bird.

The name "Trumpeter" is derived from its ringing note, much more sonorous than that of the common species (*O. columbianus*), and said to resemble a blast upon a French horn.

Olor columbianus (Ord).

WHISTLING SWAN.

Popular synomym. American Swan.

Cygnus musicus BONAP. Synop. 1828, 379 (*nec* BECHST. 1809).
Cygnus bewicki SW. & RICH. F. B.-A. ii, 1831, 465 (*nec* YARR.).—NUTT. Man. ii, 1834, 372.
Cygnus ferus NUTT. Man. ii, 1834, 366 (*nec* LEACH, 1816).
Cygnus americanus SHARPLESS, Doughty's Cab. N. H. i. 1830, 185, pl. 16.—Aud. Orn. Biog. v, 1839, 133, pl. 411; Synop. 1839, 274; B. Am. vi, 1843, 226, pl. 384.—BAIRD, B. N. Am. 1858, 758; Cat. N. Am. B. 1859, No. 561*a*.—COUES, Key, 1872, 281; Check List, 1873, No. 477; B. N. W. 1874, 545.
Olor americanus GRAY, Cat. Brit. Mus. 1844, 131.—BONAP. Compt. Rend. xliii, 1856.—RIDGW. Nom. N. Am. B. 1881, No. 558.
Anas columbianus ORD, Guthrie's Geog. 2d Am. ed. 1815. 319.
Cygnus columbianus COUES, Bull. U. S. Geol. and Geogr. Surv. Terr. 2d series, No. 6, 1876, 444; Check List, 2d ed. 1882, No. 689.
Olor columbianus STEJN. Proc. U. S. Nat. Mus. v, 1882, 210.—B. B. & R. Water B. N. Am. i, 1884, 425.—A. O. U. Check List, 1886, No. 180.—RIDGW. Man.N. Am. B. 1887, 120.

HAB. The whole of North America, breeding far north; accidental in Scotland.

SP. CHAR. Tail usually of twenty feathers; bill not longer than the head. *Adult:* Entire plumage pure white, the head, sometimes the neck, or even entire under parts, tinged with rusty. Bill, and bare loral space black, the latter usually marked by an oblong spot of orange or yellow (dull pale reddish, yellowish, or whitish in the skin); iris brown; legs and feet slate-black or dark slate-color. *Young:* Light ashy gray, paler beneath, the fore part and top of the head tinged with reddish brown. Bill reddish flesh-color, dusky at the tip; feet dull yellowish flesh color, or grayish.

Total length, about 53.00–55.50 inches; extent about 7.00 feet; wing, 21.50–22.00 inches; culmen, 3.82–4.20; tarsus, 4.06–4.32; middle toe, 5.40–5.90. Weight of adults about 18 to 25 lbs.

The common American or Whistling Swan is a more northern species, as to its breeding range, than the Trumpeter, but at the same time it is a more abundant or at least more widely distributed species, and therefore better known. It does not, apparently, breed within the limits of the United States, but betakes itself during summer to the desolate lands near and beyond the Arctic circle, where it rears its young in comparative security. It is said to occasionally winter in southern Illinois, but ordinarily its principal winter residence is the Gulf and south Atlantic coasts, including their various bays and estuaries.

The best account of the habits of this species is that furnished by Dr. Sharpless, of Philadelphia, to Mr. Audubon, supplemented by articles, presumably of the same writer, in "Doughty's Cabinet." Dr. Sharpless states that in its migrations southward it collects in flocks of twenty or thirty, and moves only when the wind is not opposed to the direction of its flight. It mounts high in the air, forms an elongated wedge, and utters loud screams as it departs, these cries being occasionally repeated as the bird moves on its way. When flying, the wings seem almost without movement, and their sweep is very unlike the semicircular movements of geese. He estimates that this bird travels at the rate of at least a hundred miles an hour when at a high elevation and with a moderate wind in its favor. Its flight is estimated to be twice as rapid as that of the Wild Goose. In traveling from its summer abode to its winter residence it keeps far inland, mounted above the highest peaks of the Alleghany, and rarely follows the watercourses. It usually arrives at its regular feeding-grounds at night, and signalizes its coming by loud and vociferous screaming, with which the shores ring for several hours. In the spring these birds again assemble, as early as March, and after many preparations by incessant washings and dressings, meanwhile disturbing the neighborhood with their noise, they depart for the north with a general clamor of unmusical screams. In the Chesapeake they collect in flocks of from one to five hundred on the flats near the western shores, from the mouth of the Susquehanna almost to the Rip Raps. When alarmed they become instantly silent, and they depend much more on swimming than on flying for effect-

ing an escape. When feeding, or dressing their plumage, this Swan is usually very noisy, and at night these clamors may be heard to the distance of several miles. Their notes are varied, some resembling the lower ones made by the common tin horn, others running through the various modulations of the notes of the clarionet. The differences are presumed to be dependent upon age.

Regarding the edible qualities of the swan there is great diversity of opinion among persons who have eaten its flesh, but it is probable that due allowance has not been made for the remarkable difference which exists between the tender, juicy flesh of a young bird, and the tough, dry meat of a very old one. A writer in "Doughty's Cabinet," above mentioned, (probably Dr. Sharpless), referring to swans on Chesapeake Bay, says that this bird, when less than five years old, is by far the finest eating of any of the waterfowl found on that bay. It possesses the flavor of the finest goose, and is far more tender. The length of time that its flesh can be preserved untainted is also mentioned as remarkable, this same writer having seen one still perfectly sweet four weeks after its death, no other method of preservation than an exposure to air having been employed.

The age of this swan may be known by the color of the feathers, the yearling being of a deep leaden tint, with a delicate red bill. In the second year it has a lighter color, and a white bill. In the third season the bill has become jet black, and about one third of the plumage is still tipped with gray; and until it is fully five years old an occasional feather will present this tint of youth. This bird is supposed to live to a great age, and its flesh becomes exceedingly tough and tasteless. In consequence of this, the more experienced hunters of the Chesapeake usually allow the patriarchs of the flock, who lead in their flight, to pass unharmed. These old leaders have a note thought to resemble in a remarkable degree the sound of a common tin horn; and the unmusical character of their cries increases in intensity with their age.

Subfamily **ANSERINÆ**.—The Geese.

Genus **CHEN** Boie.

Chen Boie, Isis, 1822, 563. Type, *Anser hyperboreus* Pallas.
Exanthemops Elliot, Proc. Phila. Acad. 1868. Type, *Anser rossii* Baird.

Of the three North American species of this genus, two, *C. hyperborea*, the type, and *C. cærulescens*, are precisely alike in the details of form, the only difference being the coloration, which is very distinct in the two; the third species, *C. rossii*, while agreeing strictly with *C. hyperborea* in plumage, both in the adult and young stages, differs decidedly in the form of the bill, which is quite peculiar. It seems unnecessary, however, to adopt the generic term *Exanthemops*, proposed for it by Mr. D. G. Elliot, since the difference in the character of the bill from that of the typical species of the genus is hardly of generic value. The species may be distinguished as follows:

Synopsis of Species.

Common Characters. *Adult* with whole head and at least part of the neck white (in two of the three species the plumage entirely white, except quills, which are blackish); the bill dull purplish red (in life) with whitish nail, and feet purplish red. *Young* with head and neck grayish, the rest of the plumage either chiefly grayish brown or else striped with grayish on a whitish ground; bill and feet dusky.

A. Plumage never chiefly white; the adult mainly grayish brown, with bluish-gray rump and wing-coverts, the head and part of the neck white. Young almost wholly grayish brown, including head and neck.

1. C. cærulescens. Bill very robust, the posterior lateral outline of the maxilla decidedly concave; commissure widely gaping, and lower outline of the mandible decidedly convex. (Page 110.)

B. Plumage of the adult pure white, the primaries black, more grayish toward the base; young grayish white, the centres of the feathers darker gray.

2. C. hyperborea. Bill robust, and shaped like that of *C. cærulescens*.

[**3. C. rossii.** Bill small, the posterior lateral outline of the maxilla almost perfectly straight, the tomia closely approximated, and the lower outline of the mandible scarcely convex; in older specimens the base of the maxilla corrugated or warty. Wing, 13.75–15.50 inches; culmen, 1.50–1.70; depth maxilla at base, .85–.95; tarsus, 2.30–3.00; middle toe, 1.80–2.05. *Hab.* Northwestern North America.]

Chen cærulescens (Linn.)

BLUE-WINGED GOOSE.

Popular synonyms. Blue Brant; Blue Goose; White-head; White-headed Brant, or Goose; Bald Brant; Blue Wavey (Hudson Bay).

Anas cærulescens Linn. S. N. ed. 10, i, 1758, 124; ed. 12, i, 1766, 198.—Gmel. S. N. i, 1788, 513.—Lath. Ind. Orn. ii, 1790, 836.

Anser cærulescens VIEILL. Enc. Meth. 1, 1823, 115.—BAIRD, Cat. N. Am. B. 1859, No. 564.—COUES, Key, 1872, 282; Check List, 1873, No. 479; Birds N. W. 1874, 553.

Chen cærulescens RIDGW. Proc. U. S. Nat. Mus., iii, 1880, 202; Nom. N. Am. B. 1881, No. 590; Man. N. Am B. 1887, 115.—COUES, Check List, 2d ed. 1882, No. 694.—B. B. & R. Water B. N. Am. i, 1884, 436.—A. O. U. Check List, 1886, p. 351, hypthet. list, No. 8.

Anser hyperboreus (supposed young) STEPHENS, Shaw's Gen. Zoöl. xii, ii, 1824, 33.—BAIRD, B. N. Am. 1858, 760.

HAB. Interior of North America, east of Rocky Mountains, breeding in the interior of Labrador; migrating south, in winter through the Mississippi Valley, occasionally along the Atlantic coast also.

SP. CHAR. *Adult:* Head and upper half of the neck white, or mostly white, the former frequently washed with orange-rufous anteriorly; lower neck and body grayish brown, the feathers bordered terminally with paler, these pale edgings, however, nearly obsolete on the neck, where the tint is darker, and joins irregularly against the white above it. Rump and wings plain pearl-gray or bluish cinereous (the former sometimes white), in striking contrast to the deep grayish brown of the scapulars, sides, etc.; that of the rump fading into white on the upper tail-coverts, and that of the greater coverts edged externally with the same. Primaries black, fading basally into hoary gray; secondaries deep black, narrowly edged with white; tail deep ash-gray, the feathers distinctly bordered wi h white Bill reddish, the commissural space black; feet reddish, *Young:* Very similar, but the chin, only, white, the rest of the head and neck being uniform dark grayish brown or brownish slate, like the breast, only darker in shade; body more cinereous than in the adult, the pale tips to the nearly truncated contour feathers being obsolete. Rump, wings, and tail as in the adult. Bill and feet blackish. *Downy young*, not seen.

Total length, about 30.00 inches; wing, 15.00–17.00; culmen, 2.10–2.30; tarsus, 3.00–3.30; middle toe, 2.15–2.50.

The chief variation in the plumage of adults of this species consists in the extent and continuity of the white of the neck. This is usually more or less broken, the dusky of the lower portion running upwards in irregular spots or projections; it extends highest on the nape, where it sometimes reaches to the crown. The bright orange-rufous tinge to the anterior portion of the head, being an adventitious stain, is frequently entirely absent. The color of the abdomen also varies from nearly pure white to a tint hardly paler than the breast; the rump is also sometimes, but rarely, entirely white, while occasionally white feathers are irregularly interspersed among the dark feathers of the body.

In both the adult and young stages of this goose the plumage is so very distinct from that of *C. hyperborea* that there is no occasion for confounding the two when the points of distinction are understood. We are unable, however, to find the slightest difference in the details of form or in proportions—a fact which suggests the mere possibility of their being white and colored phases of the same species, as in some Herons; but we do not

consider this as at all probable, although in view of their similarity of form and size, and the fact that the chief variations are a tendency toward partial albinism, the possibility of such a relationship should be borne in mind.

A specimen figured in the "Transactions" of the Chicago Academy of Sciences, Vol. I., 1869, pl. 18, has the whole under parts, posterior to the chest, pure white. We have also seen examples in which not only the abdomen, but also the rump, was white; while, as noted above, white feathers are sometimes interspersed irregularly in the dark plumage of the body. There is also something very "unsatisfactory" or suspicious in the irregular, variable, and undecided way in which the white of the neck joins upon the dark color below it.

Mr. E. W. Nelson, of Chicago, who has enjoyed the advantage of inspecting very numerous specimens in the markets of that great game center, writes as follows (*Bull. Nutt. Orn. Club*, VIII., 1876, p. 137) with regard to the changes of plumage in this species:

"The adults of this species invariably possess the white head and upper part of the neck, which in the younger specimens is more or less variegated with dark feathers. These disappear as the bird becomes older; and in many the head is a pure snowy white, in sharp contrast to the dark plumage of the rest of the upper parts. The young would appear at first sight to be a distinct species, so different is the pattern of coloration. The white of the head, neck, abdomen, and tail-coverts is entirely absent, and the bird is of an almost uniform ashy plumbeous, slightly darker about the head, and lighter on the abdomen. This plumage is retained until the second year at least, as many specimens are procured in the spring with the dark head, neck and abdomen still immaculate; and these, I think, are young of the preceding year. At the same time specimens are found with the dark feathers about the head well mixed with white, representing the second year. In birds of the third year the white predominates; but not until the fourth or fifth year does the plumage become perfect."

The Blue Goose is a common species in Illinois during the migrations, sometimes mixed in with flocks of the Snow Goose, but often in flocks composed entirely of its own species. In his

paper on the birds of northern Dakota, Dr. McChesney, referring to its migrations, mentions as a singular fact that he never observed this goose during the spring migrations when the Snow Goose is so abundant, and with which it makes its appearance in the fall—being afterwards constantly found mixed with the flocks of that goose, and associating with it on terms of such familiarity as to suggest the query whether there may not be a doubt as to its distinctness from that species, and whether it may not in reality be the young, or a semi-melanotic condition. He saw flocks of the Snow Goose covering acres of ground, with here and there a Blue Goose scattered through the flock, and he also saw them associated on the wing. "The case of this goose and that of the Black-bellied Plover" says he, "constitute the only exceptions falling under my notice of a migratory bird appearing in the fall that does not pass this region during the spring migrations. This goose departs with the preceding about the end of October." On the other hand, Prof. Cooke says that it migrates through the Mississippi Valley, and winters along the Gulf coast, in mild winters extending up to northern Mississippi and southern Illinois;" and that "during migration it was noticed at Burlington, Iowa, where bulk arrived March 20, 1884"—thus showing that, nearer the Mississippi River at least, it *does* pass northward in the spring.

The breeding ground of the Blue Goose is not known with certainty, but, according to Mr. Barnston, the Indians of the Hudson's Bay district report that it is the country lying in the interior from the northeast point of Labrador, where extensive swamps and impenetrable bogs prevail, and where these geese nest on the more solid tufts interspersed through the morass, safe from man or any other than winged enemies.

Chen hyperborea (Pall.)

LESSER SNOW GOOSE.

Popular synonyms. Lesser Snow Goose; White Brant.

Anser hyperboreus Pall. Spic. Zool. viii, 1767, 25, pl. 65 (Eastern Siberia); Zoog. Rosso-As. ii, 1826, 227.—Sw. & Rich. F. B.-A. ii, 1831, 467.—Nutt. Man. ii, 1834, 344.—Aud. Orn. Biog. iv, 1838, 562, pl. 381; Synop. 1839, 273; B. Am. vi, 1843, 212, pl. 381.—Baird, B. N. Am. 1858, 760; Cat. N. Am. B. 1859, No. 563.—Coues, Key, 1872, 282; Check List, 1873, No. 480; Birds N. W. 1874, 548.—Hensh. Zool. Wheeler's Exp. 1875, 470.

Anas hyperboreus GMEL. S. N. i, pt. ii, 1788, 504.—WILS. Am. Orn. viii, 1814, 76, pl. 68, f. 3.
Chen hyperboreus RIDGW. Nom. N. Am. B. 1881, No. 591.—COUES, Check List, 2d ed. 1882, No. 695.—B. B. & R. Water B. N. Am. i, 1884, 439.
Chen hyperborea BOIE, Isis, 1822, 563.—A. O. U. Check List, 1886, No. 169.—RIDGW. Man. N. Am. B. 1887, 115.
Anser albatus CASS. Proc. Phila. Acad. 1856, 41.—BAIRD, B. N. Am. 1858, 925; Cat. N. Am. B. 1859, No. 563*a*.—RIDGW. Orn. 40th Par. 1877, 619.
Chen albatus ELLIOT, Illust. Am. B. ii, 1869, pl. 42.
Anser hyperboreus, var. *albatus* COUES, Key, 1872, 282; Check List, 1873, No. 480*a*.
Anser hyperboreus, b. *albatus* COUES, Birds N. W. 1874, 549.
Chen hyperboreus albatus RIDGW. Proc. U. S. Nat. Mus. 1880, 202; Nom. N. Am. B. 1881, No. 591*a*.—COUES, Check List, 2d ed. 1882, No. 696.
Snow Goose PENN. Arct. Zool. ii, 1790, 479.—LATH. Synop. vi, 1885, 445.

HAB. Northern Asia (as far west as European Russia) and western North America, breeding in the Arctic districts (Alaska, etc.), migrating south in winter to southern California, Mexico, and the Gulf coast; occasional on the Atlantic coast during migrations, in Asia, as far south as Japan in winter; casual in various parts of Europe, including Ireland.

SP. CHAR. *Adult:* Entire plumage, except the primaries, snow-white, the head sometimes stained with orange-rufous anteriorly; primaries deep black, fading basally into grayish, the primary coverts and alula being hoary ash. Bill purplish red or flesh-color, the nail whitish, and the intertomial space black; iris dark brown; eyelids whitish or flesh-color; feet purple- or orange-red, the soles dingy yellowish. *Young:* Above, including the head and neck, pale ashy, the feathers of the dorsal region more whitish on their edges; wing coverts and tertials dark ashy or slate-grayish centrally, their edges broadly pure white; secondaries mottled ashy, edged with white; primaries as in the adult. Rump, upper tail-coverts, tail, and lower parts, immaculate pure white, the tail and breast tinged with pale ash. Head usually more or less tinged with orange-rufous, this deepest anteriorly. Bill and feet dusky. *Downy young* not seen.

Total length, about 23.00 to 28.00 inches; wing, 14.50–17.00 (average, 16.36); culmen 1.95–2.30 (2.15); tarsus, 2.80–3.25 (3.01); middle toe, 2.00–2.50 (2.34).

The Snow Goose, more commonly known as the "White Brant," is an abundant migrant in Illinois, coming south in October and returning in January to March, according to the character of the season. According to Mr. Nelson it visits us in large flocks, either composed entirely of its own species or mixed with individuals of the larger race (*Chen hyperborea nivalis*) and the Blue Goose, and in the central portion of the State frequents cornfields.

The summer home of the Snow Goose includes the vast extent of territory stretching from the "barren-grounds" of middle Arctic America to Bering's Strait, and also a considerable portion of northern Asia, which it traverses until the eastern portion of European Russia is reached.

Chen hyperborea nivalis (Forst.)

GREATER SNOW GOOSE.

Popular synonyms. Wavey, or Common Wavey (Hudson's Bay); Mexican Goose (Rhode Island); Red Goose (New Jersey); Texas Goose (New Jersey).

Anas nivalis FORST. Philos. Trans. lxii, 1772, 413 (Severn R.).

Chen hyperborea nivalis RIDGW. Proc. Biol. Soc. Wash. ii, 1884, 107; Man. N. Am. B. 1887, 115.—A. O. U. Check List, 1886, No. 169*a*.
Tadorna nivea BREHM, Vög. Deutschl. 1831, 854.

HAB. Eastern North America; breeding grounds unknown, but probably region between McKenzie River and Hudson's Bay; migrating south in winter through eastern United States, including Mississippi Valley, to the Gulf coast, even reaching Cuba; occasional or accidental in the Bermudas.

SUBSP. CHAR. Entirely similar to *C. hyperborea* except in size, being considerably larger; young somewhat darker in color than in true *C. hyperborea?*

Total length, about 30.00–38.00; wing, 17.35–17.50 (17.42); culmen, 2.55–2.70 (2.63); tarsus, 3.15–3.50 (3.28); middle toe, 2.60–2.80 (2.70).

This is simply a larger race of the Snow Goose, and occurs with the smaller form throughout the Mississippi Valley during its migrations. Mr. Nelson is of the opinion that in Illinois the two occur in about equal numbers. Farther eastward, however, particularly along the Atlantic coast, the larger form is decidedly the prevailing one, while west of the Rocky Mountains it probably does not occur at all, though the smaller race is abundant there.

According to Mr. Boardman, it is common during migration in eastern Maine, and it is said to be more or less common, according to the locality and other circumstances, at various points along the coast farther south.

GENUS **ANSER** BRISSON.

Anser BRISS. Orn. i, 1760, 261. Type, *Anas anser* LINN.,=*A. cinereus* MEYER.

GEN. CHAR. Bill much weaker or less swollen than in *Chen* (depth through base less than half the length of the culmen); plumage never white,* nor with white head, nor bluish wing-coverts.

This genus differs from *Chen* chiefly in the form of the bill, which is much less robust, more depressed terminally, the nails thinner and less arched, the tomia less divergent, etc. In fact, the bill of some species is quite identical in form with that of larger species of *Branta* (*canadensis* and *hutchinsii*). The type of the genus, however, *A.* (*cinereus* MEYER), has the bill decidedly approximating to that of *Chen*, the commissure gaping quite widely. Only one species occurs in America, the common White-fronted Goose (*Anser gambeli* HARTLAUB). The same species occurs also in Europe in a representative form—the *A. albifrons* GMEL. The difference between them is chiefly one of size, the American bird being decidedly the larger. Another

*Except sometimes in species which have been long domesticated.

European species or race resembling *A. albifrons*, but much smaller, seems to bear to the latter about the same relation which *Branta hutchinsii* or *B. minima* do to *B. canadensis*.

Anser albifrons gambeli (Hartl.)

AMERICAN WHITE-FRONTED GOOSE.

Popular synonyms. Brant; Speckle-belly; Laughing Goose; Pied Brant; Speckled Brant; Gray Brant; Harlequin Brant; Prairie Brant or Goose; Yellow-legged Brant or Goose; Ansar salvage (*Mexico*).

Anser albifrons BONAP. Synop. 1828, 376.—SW. & RICH. F. B.-A. ii. 1831, 466.—NUTT. Man. ii, 1834, 346.—AUD. Orn. Biog. iii, 1835, 568, pl. 236; Synop. 1839, 272; B. Am. vi, 1843, 209, pl. 380.

Anser gambeli HARTLAUB, Rev. et Mag. Zool. 1852, 7.—BAIRD, B. N. Am. 1858, 761; Cat. N. Am. B. 1859, No. 565.

Anser albifrons, var. *gambeli* COUES, Key, 1872, 282; Check List, 1873, No. 487; B. N. W. 1874, 546.

Anser albifrons b. *gambeli* B. B. & R. Water B. N. Am. i, 1884, 448.

Anser albifrons gambeli RIDGW. Proc. U. S. Nat. Mus. 1880, 203; Nom. N. Am. B. 1881, No. 593 *a*; Man. N. Am. B. 1887, 116.—COUES, Check List, 2d ed. 1882, No. 693.—A. O. U. Check List, 1886, No. 171 *a*.

Anser erythropus BAIRD, Stansbury's Rep. 1852, 321 (nec LINN.).

Anser frontalis BAIRD, B. N. Am. 1858, 562 (= young; New Mexico); Cat. N. Am. B. 1859, No. 566.

HAB. The whole of North America, breeding far northward; Cuba.

SP. CHAR. *Adult:* Prevailing color brownish gray, this uniform on the head and neck, and becoming much darker on the flanks; feathers of mantle, wings, sides, and flanks distinctly bordered terminally with pale brownish gray (sometimes approaching grayish white); upper edges of the upper layer of flank-feathers pure white, producing a conspicuous white stripe when the feathers are properly adjusted. Breast and abdomen grayish white, mixed more or less with irregular spots and patches of black, sometimes scattered and isolated, but often more or less confluent. Anal region, crissum, and upper tail-coverts immaculate pure white; rump brownish slate; greater wing-coverts glaucous gray tipped with white; secondaries black, their edges narrowly white; primaries slaty black, growing ashy basally; primary-coverts glaucous-gray. Tail brownish slate, broadly tipped with white, the feathers narrowly edged with the same. Front of the head, from the base of the bill to about half way across the lores and forehead, including the anterior border of the chin, white, bordered behind by brownish black, which gradually fades into the grayish brown of the head and neck. Bill reddish (waxy-yellow, *fide* NELSON), the nail white; feet reddish.* *Young* (= *A. frontalis* BAIRD): Nearly similar to the adult, but the anterior portion of the head dark brown, instead of white; wing-coverts less glaucous; black blotches of the under surface absent. Nail of the bill black. *Downy young:* Above, olive-green; beneath, dingy greenish yellow, deepest yellow on the abdomen. (Hardly distinguishable from young of *Branta canadensis*, but apparently more deeply colored, and with greater contrast between color of upper and lower surfaces).

Total length, about 27.00—30.00 inches; extent, about 60.00; wing, 14.25—17.50; culmen, 1.40—2.35; tarsus, 2.60—3.20; middle toe, 2.35—2.70. Tail-feathers 16 to 18, usually the former.

The principal variation among individuals of this species is in the amount of the black blotching on the lower parts. In

*"Color of bill varying with different specimens, from flesh-color and yellowish, to darker and more reddish tint; the nail at end white or nearly so. Legs and feet orange, the webs lighter, and claws white." (GURDON TRUMBULL, *Names and Portraits of Birds*, p. 11.

some specimens (as No. 10,463, Frontera, Texas), there are only two or three small spots, while in others (as No. 16,788, Hudson's Bay Territory) the black predominates over the lower parts, being continuous on the abdomen, and only broken on the breast by the admixture of a few pale grayish feathers. In No. 4,517, Washington, D. C., the whitish gray of the lower parts is strongly tinged with ochraceous-rufous—without doubt merely an adventitious stain from ferruginous matter. There is also a slight range of variation in the shade of the brownish tints of the body, some specimens inclining to ashy and others approaching a decided brownish hue. The smallest specimen (see measurements above) is No. 10,463, Frontera, Texas; the largest is No. 16,788, Washington, D. C. In No. 20,138, Fort Resolution, the white of the forehead is more extended than in any others, reaching as far as the middle of the eye, and sending back a stripe over the eye to its posterior angle, and another on each side the throat.

The variations of plumage in this species are thus discussed by Mr. E. W. Nelson, in the "Bulletin of the Essex Institute," Vol. VIII. (1876), pp. 136, 137:

"The individual variation in this species is very great. A large majority have the ordinary white frontal band and the under parts plentifully mottled with black. In others the black gradually decreases, until some specimens do not show the least trace of dark on the abdomen; in such instances the frontal white band is usually present. The young exhibited a dark brown frontal band in place of white, but with more or less dark spots on the abdomen. In very high plumage the abdomen becomes almost entirely black, only a few rusty-colored feathers being interspersed through the black. The white nail on the bill is generally crossed by one or more longitudinal stripes of dark horn-color. In spring, as the breeding season approaches, the bill becomes a clear waxy yellow. There is also much variation in size among adults of this species. I have examined a number of specimens, which by correct comparison were at least *one fourth* smaller than the average."

The White-fronted Goose is another species which visits Illinois only during its migrations, coming some time in October or early in November, and returning in March or April.

During its sojourn in this State it frequents chiefly open prairies, or wheat fields, where it nibbles the young and tender blades, and corn-fields, where it feeds upon the scattered grains. In California, it is so numerous in winter as to be very destructive to the growing wheat crop, and it is said that in the Sacramento and San Joaquin valleys farmers often find it necessary to employ men by the month to hunt and drive them from the fields. This is most successfully accomplished by means of brush hiding-places, or "blinds," or by approaching the flocks on horseback, by the side of an ox which has been trained for the purpose.

The present species is greatly esteemed for the excellent quality of its flesh, which, by those who have learned to appreciate it, is generally considered superior to that of any other goose.

Genus **BRANTA** Scopoli.

Branta Scop. Ann. i, Hist. Nat. 1769, 67. Type, *Anas bernicla* Linn.
Bernicla Stephens, Gen. Zool. xii, ii, 1824, 45. Type, *Anas bernicla* Linn.
Leucopareia Reich. Syst. Av. 1853, pl. ix. Type, *Anser leucopsis* Bechst.
Leucoblepharon Baird, B. N. Am. 1858, 763. Type, *Anas canadensis* Linn.

Gen. Char. Serrations on edge of upper mandible visible (from the outside) only near angle of the mouth, the edge (*tomium*) itself very slightly or not at all sinuated; otherwise much like *Anser*, but bill and feet always black, and the head and neck also chiefly black.

With much the same form throughout as the species of *Anser*, the birds belonging to the genus *Branta* are distinguished by the darker plumage, with the head and neck chiefly black, and the bill and feet entirely deep black, at all ages. All the known species occur in North America, and all but two of them in Illinois:

Our species may be distinguished by the following characters:

A. Head and neck black, with a somewhat triangular patch of white on each cheek, usually confluent underneath the head, but sometimes separated by a black stripe or "isthmus" along the throat; in some specimens a white collar around the lower neck. Tail, rump, and primaries brownish black; upper tail-coverts, crissum, and anal region white; rest of the plumage grayish brown, lighter below, the feathers tipped with paler.

a. Lower parts light brownish gray; white cheek-patches usually confluent on the throat; white collar round lower neck usually wanting, rarely distinct.

1. **B. canadensis** (proper). Larger (wing usually more than 16.00 inches, culmen more than 1.75); tail-feathers usually 18–20; length about 35.00–43.00; wing 15.60–21.00; culmen 1.55–2.70; tarsus 2.45–3.70.

2. **B. canadensis hutchinsii.** Smaller (wing usually less than 16.00 inches; culmen less than 1.75); tail-feathers usually 14–16; length about 25.00–34.00; wing 14.75–17.75; culmen 1.20–1.90; tarsus 2.25–3.20.

b. Lower parts deep grayish brown or brownish gray (often but little paler than upper parts), abruptly contrasted with white of anal region; white cheek-patches usually separated by a black throat-stripe; white collar round lower neck usually very distinct.

3. **B. canadensis minima.** Smallest (wing less than 16.00 inches, culmen less than 1.25); tail-feathers 14–16; length about 23.00–25.00; wing 13.60–14.50; culmen 0.95–1.15; tarsus 2.40–2.75.

B. Head, neck, and chest black, the middle of the neck with a white patch on each side, or a wide collar of the same, interrupted behind.

4. **B. bernicla.** Wing, 12.30–13.60 inches; culmen, 1.20–1.50; tarsus, 2.10–2.40; middle toe 1.70–2.10. White of the neck confined to two broken (streaked) patches on each side. Above, brownish gray, the feathers narrowly tipped with grayish white; wing-coverts nearly uniform, more bluish gray; remiges, rump, middle upper tail-coverts, and rectrices, brownish black; terminal and lateral upper tail-coverts, crissum, and anal region white; lower parts pale gray, the feathers tipped with grayish white, abrubtly and strongly contrasted with the black of the chest and fading insensibly into the white of the anal region.

There is probably no more perplexing problem in North American ornithology than the relationship of the three forms which are named above as races of *B. canadensis*. Comparing a very large true *B. canadensis* with a small *B. minima*, no one probably would for a moment think of considering them the same species; yet in a large series of specimens so many examples occur which seem to connect both these extremes with the middle-sized *B. hutchinsii*, that the chain appears to be complete; not only is the size thus variable, but every character of coloration also appears to be unreliable. It may be that these intermediate specimens are hybrids, but whether such is the true explanation or not cannot now be determined.

Branta canadensis (Linn.)

CANADA GOOSE.

Popular synonyms. Common Wild Goose; Big Wild Goose; Honker; Reef Goose (North Carolina); Bay Goose (Texas); Cravat Goose.

Anas canadensis Linn. S. N. ed. 10, i, 1758, 123; ed. 12, i, 1766, 198.—Wils. Am. Orn. viii, 1814, 52, 67, f. 4.

Anser canadensis Vieill. Enc. Meth. 1823, 114.—Sw. & Rich. F. B.-A. ii, 1831, 468.—Nutt. Man. ii, 1834, 349.—Aud. Orn. Biog. iii, 1835, 1; v, 1839, 607, pl. 201; Synop. 1839, 270; B. Am. vi, 1843, 178. pl. 376.

Bernicla canadensis Boie, Isis, 1826, 921.—Baird, B. N. Am. 1858, xlix, 764; Cat. N. Am. B. 1859, No. 567.—Ridgw. Nom. N. Am. B. 1881, No. 594.—Coues, Key, Check List, 2d ed. 1882, No. 702.

Branta canadensis Bannist. Proc. Acad. Nat. Sci. Phila. 1870, 131.—Coues, Key, 1872, 233; Check List, 1873, No. 485; Birds N. W. 1874, 554.—Hensh. Zoöl. Wheeler's Exp. 1875, 471.—A. O. U. Check List, 1886, No. 172.—Ridgw. Orn. 40th Par. 1877, 620; Man. N. Am. B. 1887, 117.

Bernicla canadensis a. *canadensis* B. B. & R. Water B. N. Am. i, 1884, 455, 457.

? *Bernicla barnstoni* Ross, Canad. Nat. vii, Apr. 1862, 152.

HAB. Temperate North America in general, breeding chiefly within the United States, Canada, Newfoundland, etc.

SP. CHAR. *Adult:* Head and neck deep black, the former with a white patch covering the throat and extending up over the cheeks to behind the eyes, growing gradually narrower above, the upper outline usually more or less truncated; this white patch, however, sometimes interrupted on the throat by a narrow black stripe or isthmus. Very rarely, a broad white band, more or less distinctly indicated, crosses the forehead between the eyes. Black of neck frequently bordered below by a white collar, more or less distinct. Upper surface grayish brown, each feather bordered terminally by a paler shade; lower parts with the exposed surface of about the same shade as the tips of the feathers of the upper parts, the concealed portion of the feathers of the shade of the prevailing color above—this much exposed along the sides and on the flanks. Primaries and their coverts plain dusky, the former growing nearly black terminally. Anal region, crissum, and lower tail-coverts immaculate white. Tail plain deep black; rump plain blackish slate. Bill and feet deep black. *Young:* Similar to the adult, but the colors duller, the markings less sharply defined; black of the neck passing gradually below into the grayish of the chest; white cheek-patches usually finely speckled with dusky; light-colored tips to the contour-feathers broader. *Downy young:* Above, including an occipital patch, golden olive-green; beneath pale greenish ochre, the head rather deeper.

Total length, about 35.00–43.00 inches; wing, 15.60–21.00; culmen, 1.55–2.70; tarsus, 2.45–3.70.

According to Professor Cooke,* the Canada Goose "winters in the southern half of the United States, and breeds on both sides of our northern boundary. It breeds regularly at Heron Lake, Minn., and has been known to breed in southern Illinois (Nelson)." This statement of course applies to the present time, its former breeding range being undoubtedly far more extensive, and including a large portion of the United States to the southward, where the settlement of the country has driven it to more secluded haunts. Even yet a few pairs seem to linger in the more retired spots of its former range. Mr. Nelson's record for Union Co., Illinois (vicinity of Anna), is one case in point, while the more recent record of its breeding at Reelfoot Lake, Tennessee (L. O. Pindar, in *The Auk*, for October, 1886, p. 481) is another.

The general habits of this species are so well known that it is scarcely necessary to speak of them here at any length. It may be mentioned, however, that in certain portions of the "Northwest," especially in parts of Montana and Dakota, the Canada Goose is said to sometimes *nest in trees*, possession being taken of a deserted nest of a Fish Hawk or some other large bird of prey.

* Bird Migration in the Mississippi Valley, p. 75.

This circumstance, mentioned by Dr. Coues and Dr. Merrill has, however, been discredited by Dr. Agersborg, who says* that he has "several times been shown nests in trees, claimed by the settlers to be the nests of geese; but the "geese" have invariably turned out to be cormorants (*Phalacrocorax dilophus*). Of the few nests of the Canada Geese found, the majority have been far away from any water, far out on the prairie; but one nest was built among some large boulders, two feet from the water's edge * * * May not many, if not all of the nests seen in trees by other observers have belonged to the shag?"

The following interesting notes on domesticated Canada Geese are given by Mr. Wm. Dutcher, in *The Auk*, for January, 1885, p. 111:

During the last week in May, 1879, I saw some goslings, just hatched, belonging to Capt. Lane, of Shinnecock Bay, Long Island, N. Y. August 16, I saw them again and was unable to distinguish them from the rest of the flock by their size or plumage. The present season Capt. Lane raised nineteen geese. I saw the flock daily from June 26 to July 25, and during the latter part of the time the young birds were hardly distinguishable from the old ones, except by the solicitude the parents displayed for the safety of their progeny. Capt. Lane has had remarkable success in breeding Canada Geese in confinement, and has kindly furnished me with the following information regarding their habits during the incubating season: "They make their nests of dried grass, raising them about twelve inches from the ground. They feather them when they begin to lay, which is about May 1. None lay until three years old; the first season four eggs are laid, five the second season, and when older six and seven. A goose never has more than one mate. The gander never sits on the nest, but while the goose is sitting never leaves her. The time of incubation is four weeks. The young when hatched are strong enough to take care of themselves, that is, they eat grass and walk and swim as soon as they get dry. They will eat meal on the second day. They are in the down four weeks, and are fully grown in six weeks. When swimming, the gander goes ahead, the young next, and the goose follows, invariably."

* *The Auk*, II, 1885, pp. 287-288.

Branta canadensis hutchinsii (Sw. & Rich.)

HUTCHINS'S GOOSE.

Popular synonyms. Lesser Canada Goose; Small Gray Goose; Little Wild Go ose; Eskimo Goose; Mud Goose (Long Island); Marsh Goose (North Carolina); P rairie Goose; Bay Goose (Texas).

Anas bernicla, var. *b.* RICH. App. Parry's Voy. 368.

Anser hutchinsii SW. & RICH. F. B.-A, ii, 1831, 470.—NUTT. Man. ii, 1834, 362.—AUD. Orn. Biog. iii, 1835,226, pl. 277; Synop. 1839,271; B. Am. vi, 1843, 198, pl. 377.

Bernicla hutchinsii WOODH. Sitgr. Exp. 1853, 102.—BAIRD, B. N. Am. 1858, pp. xlix, 766; Cat. N. Am. B. 1859, No. 569.

Branta hutchinsii BANNIST. Proc. Acad. Nat. Sci. Phila. 1870, 131.—RIDGW. Orn. 40th Par. 1877, 620.

Branta canadensis, var. *hutchinsii* COUES, Key, 1872, 284; Check List, 1873, No. 485*b*.

Branta canadensis, c. *hutchinsii* COUES, B .N. W. 1874, 554.

Bernicla canadensis hutchinsii, RIDGW. Proc. U. S. Nat. Mus. iii, 1880, 203; Nom. N. Am. B. 1881, No. 594*a*.—COUES, Check List, 2d ed. 1882, No. 704.

Bernicla canadensis γ. hutchinsi B. B. & R. Water B. N. Am. i, 1884, 455, 458.

Branta canadensis hutchinsii A. O. U. Check List, 1886, No, 172*a*.—RIDGW. Man. N. Am. B. 1887, 117.

Anser leucopareius BRANDT, Bull. Sc. Ac. St. Petersb. i, 1836, 37.

HAB. North America in general, breeding in the Arctic districts, and migrating south in winter, chiefly through the western United States and Mississippi Valley; northeastern Asia.

SUBSP. CHAR. Exactly like *B. canadensis* in plumage, but considerably smaller, and tail-feathers usually 14 or 16. Total length about 25.00–35.00 inches; wing, 14.75–17.75; culmen, 1.20–1.90; tarsus, 2.25–3.20.

In a large series of specimens, the following variations are noted: The ashy beneath varies from a pale tint of *canadensis* to the dark shades of *minima* and *occidentalis*, but is usually about intermediate between the two extremes; the white collar round the neck, at the lower edge of the black, is seen only in autumnal or winter specimens. The white of the head is usually uninterrupted on the throat, even in very dark-plumaged examples, but occasionally is separated into two patches by a black throat-stripe, as in *minima* and *occidentalis*, the plumage otherwise being light colored.

This small form of the Canada Goose is abundant in Illinois during its migrations, and has little to distinguish it from the larger kind beyond its smaller size, proportionally smaller bill, and the possession, ordinarily, of fewer tail-feathers (one or two pairs less).

Branta canadensis minima Ridgw.

CACKLING GOOSE.

Popular synonyms. Little Cackling Goose; Little White-cheeked Goose; Chornie Goose (Prybilov Islands).

Bernicla leucopareia Cass. Illustr. B. Cal. Tex., etc., 1853, 272, pl. 45, nec *Anser leucopareius* Brandt. (California.)

Branta canadensis var. *leucopareia* Coues, in Elliott's "Affairs in Alaska," 1875, 190; not of Key, 1872, p. 284, which = *B. occidentalis* Baird. (Prybilov Islands.)

Bernicla canadensis leucopareia Ridgw. Nom. N. Am. B. 1881, No. 594*b*.—Coues, 2d Check List, 1882, No. 703; 2d Key, 1884, No. 689.

Bernicla canadensis, δ. *leucopareia* B. B. & R. Water B. N. Am. i, 1884, 456, 459.

Branta hutchinsi, β. *leucoparia* Ridgw. Proc. U. S. Nat. Mus. i, 1878, 445. (Stockton, Cal.)

Branta canadensis, b. *leucopareia* Coues, B. N. W. 1874, 554.

Branta minima Ridgw. Proc. U. S. Nat. Mus. viii, Apr. 20, 1885, 23.—Stejn. Orn. Expl. Kamtsch. 1885, 147 (in text).

Branta canadensis minima Ridgw. Proc. U. S. Nat. Mus. viii, 1885, 355; Man. N. Am. B. 1887, 117.—Turner, Contr. Nat. Hist. Alaska, 1886, 139 (habits).—A. O. U. Check List, 1887, No. 172*c*.—Nelson, Rep. Nat. Hist. Alaska, 1887, 86 (habits).

Branta canadensis Elliott, Monog. Seal Islands, 1882, 130.

Hab. Pacific coast of North America, breeding abundantly about the Yukon delta and contiguous shores of Norton Sound, and migrating south in winter to California; occasional migrant to Mississippi Valley (Wisconsin, Michigan, Illinois, etc.).

Subsp. Char. Similar to *B. canadensis occidentalis*, Baird, but very much smaller. Differing from *B. canadensis hutchinsii* in smaller size, especially the bill, and much darker coloration. White cheek-patches usually separated by a black stripe or spotting on the throat, and lower part of neck encircled by a more or less distinct white collar. Lower parts dark grayish brown, abruptly defined against the white of the anal region. Total length, about 22.00–25.00 inches; wing, 13.60–14.50; culmen, 0.95–1.35; depth of bill at base, .60–.75; width, .52–.60; tarsus, 2.40–2.75; middle toe, 1.90–2.30; tail-feathers, 14 or 16. *Adult* (No. 62,526, male ad., St. Paul's Island, Alaska, May 14, 1872: H. W. Elliott). Throat with a black "isthmus" .75 of an inch broad, separating widely the white cheek-patches. A distinct white collar between the black of the neck and dark brownish gray of the chest, this about .75 of an inch wide in front, and extending completely around, though much narrower, and somewhat interrupted, behind. Lower parts dark brownish gray, abruptly defined against the white of the crissum. Wing, 14.25 inches; culmen, 1.30; depth of maxilla at base, .75; width, .65; tarsus, 2.55; middle toe, 2.30; tail-feathers, 14.

Other specimens in the collection are chiefly in summer plumage, having paler lower parts and less conspicuous white collar; but nearly all have the two cheek-patches completely separated by a broad black isthmus on the throat.

With only two exceptions, the specimens are from the Pacific coast, chiefly the northern portion.

Young (No. 9,956, North Red River, Manitoba, September: R. Kennicott). Much like the adult, but the black of the neck fades gradually into the smoky gray of the chest, without being separated by the usual white collar; the white cheek-patches are thickly, though minutely, speckled with black; the feathers of the lower parts, and also the upper tail-coverts, have blackish shafts. It measures as follows: Wing, 13.70; culmen, 1.25; tarsus, 2.60; middle toe, 2.10.

The smallest examples seen are the following:

No.	Locality.	Date.	Wing.....	Culmen.....	Depth of bill at base.....	Width of bill at base.....	Tarsus.....	Middle toe.....	Number of rectrices.....
.....	Fort Klamath, Or.....	.....	14.20	.93	.60	.55	2.50	1.90	16
77164	Stockton, Cal	December	13.60	1.10	.60	.52	2.60	1.90	15
70066	Andalusia, Ill	.....	14.25	1.25	.70	.65	2.10	1.80	16
73136	St. Michael's, Alaska..	Sept. 13...	14.15	1.05	.60	.55	2.60	1.90	15
72744	Washoe Lake, Nev	Nov. 12....	14.25	1.12	.70	.55	2.40	1.95	16

There are others but slightly larger. Any of the above could stand, in a natural attitude, beneath the breast of some of the larger examples of the true Canada Goose.

This diminutive goose, hardly larger than a Mallard Duck, is rare in Illinois, being chiefly a bird of the western portions of the continent. It is very abundant during winter in California, where it is known as the "Cackling Goose," on account of its peculiar notes.

Mr. Nelson informs us* that it "is the most common and generally distributed goose found breeding along the Alaskan coast of Bering Sea," and that its breeding grounds extend along the courses of the great rivers far into the interior. "As May advances and one by one the ponds open.....the flocks come cleaving their way from afar, and as they draw near their summer homes raise a chorus of loud notes in a high-pitched tone like the syllable 'lûk,' rapidly repeated, and a reply rises upon all sides, until the whole marsh re-echoes with the din, and the new-comers circle slowly up to the edge of a pond amid a perfect chorus raised by all the geese about, as if in congratulation."

Mr. Turner says† that this is the first of the geese to visit the vicinity of St. Michael's, where it arrives about the first of May, or even earlier. He states that it is the commonest of all the geese that abound there, and that while it breeds all along the coast of the Yukon district it is reported to be rare in the interior, where it is replaced by Hutchins's Goose.

* Report upon Natural History Collections in Alaska, 1887, p. 86.

† Contributions to the Natural History of Alaska, 1886, pp. 139–141.

Branta bernicla (Linn.)

BRANT.

Popular synonyms. Brant Goose; Brent Goose; Common Brant.

Anas bernicla Linn. S. N. ed. 10, i, 1758, 124; ed. 12, i, 1766, 198.—Wils. Am. Orn. viii, 1814, pl. 72, fig. 1.

Anser bernicla Illig. Prodr. 1811, 277.—Sw. & Rich. F. B.-A. ii, 1831, 469.—Nutt. Man. ii, 1834, 359.—Aud. Orn. Biog. v, 1839, 24, 610, pl. 391; Synop. 1839, 272; B. Am. vi, 1843, 203, pl. 379.

Branta bernicla Scopoli, Ann. I. Hist. Nat. 1769, 67.—Bannist. Proc. Acad. Nat. Sci. Phila. 1870, 131.—Coues, Key, 1872, 284; Check List, 1873, No. 484; B. N. W. 1874, 556.—A. O. U. Check List, 1886, No. 173.—Ridgw. Man. N. Am. B. 1887, 118.

Anser brenta Pall. Zoog. Rosso.-As. ii, 1826, 223.

Bernicla brenta Stephens, Gen. Zoöl. xii, pt. ii, 1824, 46.—Baird, B. N. Am. 1858, 767; Cat. N. Am. B. 1859. No. 570.—Ridgw. Nom. N. Am. B. 1881, No. 595.—Coues, Check List, 2d ed. 1882, No. 700.—B. B. & R. Water B. N. Am. i, 1884, 467.

Anser torquata Frisch, Vög. Deutschl. ii, pl. 156.

Bernicla melanopis Macgill. Man. Orn. ii, 1842, 151.

Hab. Eastern North America in general, but chiefly the Atlantic coast; rare in the interior, or away from salt water; breeds in hyperborean latitudes. Palæarctic Region.

Sp. Char. *Adult* (No. 63,616, New York market: J. H. Batty). Head, neck, and chest continuous black, the anterior portion of the head having a brownish cast; posterior outline of the black on the chest very regular and sharply-defined against the brownish gray of the breast. Middle of the neck with a transverse crescentic patch of white on each side, formed of white tips and sub-tips of the feathers, the black showing through in places so as to form oblique lines. Above, smoky-slate, the feathers distinctly bordered terminally with a much paler and more brownish shade. Wings like the back, but with a somewhat less brownish cast, the paler margins nearly obsolete. Secondaries blackish brown; primaries brownish black. Tail uniform black, but almost concealed by the snow-white lengthened coverts, the upper of which, however, are invaded by a median stripe of blackish brown from the rump. Breast, abdomen, sides, and flanks much like the upper parts, but the light tips to the feathers whiter, broader, and more conspicuous; anal region and crissum immaculate pure white. Wing, 12.30 inches; culmen, 1.20; tarsus, 2.05; middle toe, 1.70.

Young (No. 12,786, Washington, D. C., December, 1858: C. Drexler). Similar to the adult, but the wing-coverts and secondaries broadly tipped with pure white, forming very conspicuous bars. Lower parts paler and more uniform; white on middle of the neck reduced to small specks.

The Brant is chiefly a salt-water species, and therefore not often seen in the interior, though, as Professor Cooke, in his "Bird Migration in the Mississippi Valley" (p. 78) has correctly stated, "there is much uncertainty in using the records concerning this species, because it is so commonly confounded with the Snow Goose, which is locally known as Brant all through the West. From the *few* records that can be depended on it would seem to have migrated at about the same time as *Branta canadensis*."

Professor Cooke says that "during the winter of 1883–84 this species was represented from Illinois southward by a few rare

visitants. In the spring it was rare south of Minnesota, but by the time it reached that State its numbers had been increased by recruits from the southeast, and it became almost common."

Subfamily **ANATINÆ**.—The Ducks.

Genus **ANAS** Linnæus.

Anas Linn. S. N. ed. 10, i, 1758, 122; ed. 12, i, 1766, 194. Type, by elimination, *A. boschas* Linn.

Gen. Char. Hind toe without a membranous lobe, or "flap"; bill not spatulate; tail-feathers 14, narrow and pointed at the tip, but the middle pair not conspicuously elongated, the graduation amounting to less than one third its total length; culmen shorter than middle toe without tarsus.

Having in the introduction to this work stated my intention to follow the classification and nomenclature of the American Ornithologists' Union's "Check List of North American Birds", I find myself obliged to group several very strongly marked and obviously distinct generic types under the generic name *Anas*, these groups being admitted to merely subgeneric rank in the scheme referred to. These so-called subgenera are characterized as follows:

A. Culmen longer than middle toe without claw.

a. Width of upper mandible near tip more than one third the culmen, the upper and lateral outlines more or less convex for the terminal half.

1. **Anas.** Wing more than 8.00 inches; scapulars and tertials in adult males broad, and without light-colored median stripes.

2. **Querquedula.** Wing less than 8.00 inches; scapulars and tertials in adult males lanceolate, and marked with buffy or whitish median stripes.

b. Width of upper mandible near tip less than one third the length of the culmen, the upper and lateral outlines straight for the terminal half. (Wing less than 8.00 inches,)

3. **Nettion.**

B. Culmen shorter than middle toe without claw.

4. **Chaulelasmus.** Distance from anterior border of nostril to tip of upper mandible more than three times the distance from the same point to nearest loral feathers; lamellæ fine and very numerous (more than 30 visible from the outside); tail-feathers 16.

5. **Mareca.** Distance from anterior border of nostril to tip of upper mandible less than three times the distance from the same point to nearest loral feathers; lamellæ coarser and less numerous (fewer than 15 visible from the outside); tail-feathers 14, the tail much graduated.

For the greater convenience of the reader, keys to the species are given under the separate subgeneric headings, which follow.

Subgenus **ANAS** Linnæus.

Anas Linn. S. N. ed. 10, i, 1758, 122; ed. 12, i, 1766, 194. Type, by elimination, *A. boschas* Linn.

Subgen. Char. Usually rather large-sized ducks (wing, in North American species, 10 inches or more), with the bill a little longer than the head or foot, rather broad, depressed, the edges parallel, the end rounded; speculum metallic green, blue, or violet, in both sexes, usually bordered posteriorly by a black band, this generally succeeded by a white one.

The two species which are known to occur in Illinois are characterized as follows:

A. Adult male, except in breeding season, very different from the female, the plumage varied and brilliant; secondaries tipped with white, and greater coverts crossed by a subterminal bar of the same.

1. **A. boschas.** *Adult male:* Four middle tail-feathers strongly recurved; head and neck brilliant velvety green; chest rich chestnut, with a white collar between it and the green of the neck; speculum rich metallic violet, bounded anteriorly by a black bar, this preceded by a white one, and posteriorly by a black subterminal and white terminal band. *Adult female and male in breeding season:* Wings as in the above; elsewhere variegated with dusky and ochraceous, the former on the centres of the feathers, and predominating on the upper parts, the latter on the borders, and prevailing beneath.

B. Sexes alike, at all ages and seasons; no white on the outer surface of the wing.

2. **A. obscura.** Prevailing color dusky, the feathers bordered with dull ochraceous; head and neck dull buff, everywhere streaked with dusky; no black at base of the bill; speculum usually deep violet.

Anas boschas Linn.

MALLARD.

Popular synonyms. Green-head; Wild Drake; Wild Duck; English Duck (Florida); French Duck (Louisiana); Gray Duck; Gray Mallard.

Anas boschas Linn. S. N. ed, 10, i, 1758, 127; ed. 12, i, 1766, 205.—Wils. Am. Orn. viii, 1814, 112, pl. 70, f, 7.—Aud. Orn. Biog. iii, 1835, 164, pl. 221; Synop. 1839, 276; B. Am. vi, 1843, 236, pl, 385.—Baird, B. N. Am. 1858, 774; Cat. N. Am. B. 1859, No. 576.—Coues, Key, 1872, 285; Check List, 1873, 488; B. N. W. 1874, 559.—B. B. & R. Water B. N. Am. i, 1884, 491.—Hensh. Zool. Wheeler's Exp. 1875, 472.—A. O. U. Check List, 1886, No. 132.—Ridgw. Orn. 40th Par. 1877, 621; Man. N. Am. B. 1887, 91.

Anas boscas Wharton, Ibis, 1879, 453.—Ridgw. Nom. N. Am, B. 1881, No. 601.—Coues, Check List, 2d ed. 1882, No. 707.

Anas domestica Gmel. S. N. i, pt. ii, 1788, 538.

Anas (Bochas) domestica Sw. & Rich. F. B.-A. ii, 1831, 442.—Nutt Man. ii, 1834, 378.

Anas fera "Briss."—Leach, Cat. Brit. Mus. 1816, 30.

Anas aduncа Linn. S. N. ed. 12, i, 1766, 206.—Gmel. S. N. i, pt. ii, 1788, 538.

Hab. Northern hemisphere; in North America, generally distributed, migrating south in winter to Panama, Cuba, and Bahamas.

Sp. Char. *Adult male in fall, winter, and spring:* Head and neck continuous soft brilliant metallic green, showing purple and golden-bronze reflections in different lights. A ring of pure white round the lower part of the neck interrupted behind; chest and

upper part of the breast rich dark chestnut. Interscapulars brownish gray, finely waved with grayish white; scapulars and lower parts grayish white, delicately waved with dark ash. Outer webs of tertials dark umber-brown, this also tinging the adjoining scapulars; wing-coverts uniform deep brownish gray, the last row tipped with opaque velvety black, and with a subterminal bar of pure white; speculum rich metallic violet, with a subterminal velvety black, and terminal pure white bar; primaries plain brownish gray. Rump, upper tail-coverts, and crissum, intense velvety black, showing faint reflections of bluish green. Tail white, the feathers grayish centrally. Two middle feathers black, slightly recurved; the two longer upper tail-coverts greatly recurved. Bill olive-yellow or ochraceous-olive (in life), the nail black; iris dark brown; tarsi and toes fine rich orange-red (changing to yellowish in dried skin). Length, about 24.00 inches; extent, 38; wing, 11.00–11.85; culmen, 2.10–2.40; tarsus, 1.60–1.80; middle toe, 2.00–2.15. *Adult male in summer:* "Closely resembling the female, being merely somewhat darker in color. This plumage is donned by degrees early in June; and in August the full rich winter dress is again resumed" (SHARPE & DRESSER). *Adult female:* Wing as in the male. Above, brownish dusky, much variegated by broad pale ochraceous edges to the feathers; beneath pale ochraceous, the feathers dusky centrally, producing a thickly spotted or striped appearance. On the top of the head the dusky predominates, as it also does in a loral and auricular line, forming a lighter superciliary stripe between this and the crown. Bill dark olive-greenish, becoming olivaceous-yellow along edges; feet lighter orange-red than in male. Length, about 20.00–21.50 inches; wing, 10.25–11.50; culmen, 2.00–2.35; tarsus, 1.50–1.80; middle toe, 1.90–2.05. *Downy young:* Above, deep olivaceous, relieved by two pairs of yellowish buff spots, the first pair on the back, just behind the wings, the second at the base of the tail, the first not confluent with the buff of the lower parts; wings deep olivaceous, varied on both edges with dull greenish yellow; pileum and nape olivaceous, darker on the occiput, lighter on the forehead; a broad superciliary stripe, including the sides of the forehead, sides of the head and neck, and entire lower parts, yellowish buff, deepest on the head, paler on the anal region and crissum; sides more grayish, and crossed, between the wings and thighs, by two wide patches of dark olive projecting from that of the back. Side of the head marked by a narrow but very distinct stripe of dark brown from the upper basal angle of the maxilla to the eye, thence back to and confluent with the olivaceous of the occiput; beneath the latter, almost directly over the ear, an isolated spot of the same.

The adult males in winter plumage vary chiefly in the extent and richness of the chestnut of the chest. Sometimes this is restricted to the chest, but occasionally it spreads over the breast, as in No. 12,718, Washington, D. C. (December), in which the entire lower parts, except the sides, are tinged with rich cream-color.

The Mallard is probably the best known of all our wild ducks, being both plentiful and conspicuous on account of its size. Although chiefly a migrant, a few sometimes remain during mild winters in the southern portion of the State, and isolated pairs undoubtedly breed in a few of the more secluded localities, where they are reasonably free from danger of molestation.

"Marshy places, the margins of ponds and streams, pools and ditches, are its favorite resorts. It walks with ease, and can even run with considerable speed, or dive, if forced to do so; but never dives in order to feed. Its food consists chiefly of the seeds of grasses, fibrous roots of plants, worms, mollusks, and insects. In feeding in shallow water it keeps the hind part of its body erect, while it searches the muddy bottom with its bill. When

alarmed and made to fly, it utters a loud *quack*, the cry of the female being the louder. It feeds silently; but after hunger is appeased, it amuses itself with various jabberings, swims about, moves its head backward and forward, throws the water over its back, shoots along the surface, half flying, half running, and seems quite playful. If alarmed, it springs up at once with a bound, rises obliquely to a considerable height, and flies off with great speed, the wings producing a whistling sound. It flies by repeated flaps, without sailing or undulations; and when in full flight its speed is hardly less than a hundred miles in an hour.

"The Mallard pairs early in the spring, and soon disperses, each pair seeking its breeding-place, and nesting on the ground, in the midst of marshes or among water plants, occasionally on higher ground, but always in the vicinity of water. Its nest is usually large, and rudely constructed of sedges and coarse grasses, rarely lined with down or feathers. It has been known in rare instances to nest in a tree; in such cases occupying the deserted nest of a Hawk, Crow, or other large bird. The eggs, usually six or eight in number, are pale dull green or greenish white, and measure 2.25 inches by 1.60 inches.

"The female alone incubates, the male leaving her to undergo his annual moult. The female sits very closely, and will sometimes even allow herself to be taken on the nest, or permit the eggs to be removed while she is sitting. When she leaves the nest she conceals the eggs with hay, down, or any convenient material. The period of incubation is four weeks. The young, when hatched, immediately follow their mother to the water, where she attends them devotedly, aids them in procuring food, and warns them of the approach of danger. While they are attempting to escape, she feigns lameness, to attract to herself the attention of the enemy. The young are extremely active, dive with surprising celerity, and remain under water with only the bill above the surface. When the young are full grown, the male rejoins the brood; and several families unite to form a small flock." (*Water Birds of North America.*)

Anas obscura Gmel.

DUSKY DUCK.

Popular synonyms. Black Mallard; Black Duck; Black English Duck (Florida).

Anas obscura GMEL. S. N. i, pt. ii, 1788, 541.—WILS. Am. Orn. viii, 1814, 141, pl. 72, fig. 5.—NUTT Man. ii, 1834, 392.—AUD. Orn. Biog. iv, 1838, 15, pl. 302; Synop. 1839, 276; B. Am. vi, 1843, 244, pl. 386.—BAIRD, B. N. Am. 1858, 775; Cat. N. Am. B. 1859, No. 577.—COUES, Key, 1872, 285; Check List, 1873, No. 489; 2d ed. 1882, No. 708; B. N. W. 1874, 560.—RIDGW. Nom. N. Am. B. 1881, No. 602; Man. N. Am. B. 1887, 91.—B. B. & R. Water B. N. Am. i, 1884, 499. —A. O. U. Check List, 1886, No. 133.

HAB. Eastern North America, west to the Mississippi Valley, north to Labrador and Fort Anderson and York Factory; breeding from Long Island, northern Illinois, and Iowa, northward.

SP. CHAR. *Adult.* Prevailing color brownish black or dusky, the feathers edged, more or less distinctly, with pale grayish fulvous. Head and neck about equally streaked with grayish white (more ochraceous near the bill) and dusky; pileum nearly uniform dusky, and a dusky stripe back from the eye. Speculum violet, changing to green in some lights, narrowly tipped with white, and with a broad subterminal bar of velvety black; last row of coverts dusky brownish, broadly tipped with black. Sexes alike. "Bill yellowish green, the unguis dusky; iris dark brown; feet orange-red, the webs dusky" (AUDUBON).

Wing, 10.50–11.50 inches; culmen, 2.00–2.35; tarsus, 1.70–1.80; middle toe, 1.90–2.10.

Downy young. Above olivaceous-brown, faintly relieved by six inconspicuous markings of light brownish buff, situated as follows: one on the posterior border of each armwing; one (small and sometimes nearly obsolete) on each side of the back, behind the wings, and one, more distinct, on each side the rump, near the base of the tail. Pileum and hind neck (longitudinally) brown, like the back; rest of the head and neck, with lower parts, light dingy brownish buff, paler on the abdomen; side of head marked with a narrow dusky stripe running from the upper basal angle of the maxilla to the eye, thence back toward the occiput, but scarcely confluent with the brown on the latter; an indistinct spot on the auricular region, with a still less distinct dusky mark extending back from this to the nape.

A summer specimen from Moose Factory, Hudson's Bay Territory (No. 17,971, JOHN MCKENZIE), differs from fall, winter, and spring examples from the United States in having the pale edges of the feathers nearly all worn off, so that the plumage appears to be almost uniform black, while the lower parts are strongly tinged with rusty, this approaching a bright ferruginous tint on the breast. Some examples have a slight tinge of metallic green on the sides of the head, behind the eye.

The Dusky Duck is chiefly an eastern species, and reaches nearly the western limit of its range in Illinois. Just how far to the west and southwest it extends is unknown, but Col. N. S. Goss is convinced that it does not occur in Kansas, where a quite distinct though a somewhat similar species, *Anas fulvigula maculosa* (Senn.), replaces it. It has been recorded from Utah Lake, Utah, but in view of what we now know the record in question doubtless refers to the species just mentioned.

Professor Cooke says that "though principally a bird of the Eastern States, the Black Duck is not rare in the northern part of the Mississippi Valley," and that it breeds in Iowa and Illinois, but he does not give particulars as to its breeding in the latter State.

Subgenus **Querquedula** Stephens.

Querquedula Stephens, Shaw's Gen. Zoöl. xii, pt. ii, 1824, 142. Type, *Anas querquedula* Linn.

Cyanopterus Eyton, Mon. Anat. 1838, 38. Type? (Not of Halliday, 1835.)

Pterocyanea Bonap. Cat. Met. 1842, 71. Type?

Subgen. Char. Size small (wing less than 8 inches). Bill slightly longer than the head, the edges nearly parallel, the maxillary tomium sinuated, so as to distinctly expose the lamellæ for the basal half, and the terminal half of the culmen slightly but distinctly arched. Otherwise much like *Nettion*.

The two North American species of *Querquedula* agree very closely in the details of form, in which respect they scarcely differ from the type of the genus, the *Q. querquedula* of Europe. The coloration of the wing, which is almost exactly that of *Spatula*, is also essentially the same in these three species. The females are very different from the males, except in the colors of the wing, being much duller. The following are the main differential characteristics of the North American species:

1. **A. discors.** *Adult male:* Head and neck dull plumbeous, with a faint lavender-purple gloss on the sides of the occiput; pileum blackish; a large white, somewhat crescent-shaped, mark before the eye, entirely across fore part of the head; lower parts pale reddish, spotted with black.

2. **A. cyanoptera.** *Adult male:* Head, neck, and lower parts rich uniform chestnut, the abdomen duller (sometimes dusky), the pileum blackish.

Anas discors Linn.

THE BLUE-WINGED TEAL.

Popular synonyms. Blue-wing; White-face, or White-faced Teal; Summer Teal; Cerceta comun (Mexico).

Anas discors Linn. S. N. ed. 12, i, 1766, 205.—Wils. Am. Orn. viii, 1814, 74, pl. 68, fig. 4.—Aud. Orn. Biog. iv, 1838, 111, pl. 313; Synop. 1839, 282; B. Am. vi, 1843, 287, pl. 393.—A. O. U. Check List, 1886, No. 140.—Ridgw. Man. N. Am. B. 1887, 93.

Anas (Boschas) discors Sw. & Rich. F. B.-A. ii, 1831, 444.—Nutt. Man. ii, 1834, 397.

Querquedula discors Stephens, Shaw's Gen. Zoöl. xii, pt. ii, 1824, 149.—Baird, B. N. Am. 1858, 779; Cat. N. Am. B. 1859, No. 581.—Coues, Key, 1872, 287; Check List, 1873, No. 496; 2d ed. 1882, No. 716; Birds N. W. 1874, 566.—Hensh. Zoöl. Wheeler's Exp. 1875, 476.—Ridgw. Orn. 40th Par. 1877, 623; Nom. N. Am. B. 1881, No. 609.—B. B. & R. Water B. N. Am. i, 1884, 531.

Sarcella mâle de Cayenne, dite le Soucrourou, Buff. Pl. Enl. 966 (male ad.).

Hab. North America in general, but chiefly the Eastern Province; north to Alaska, south in winter throughout West Indies, Central America, and northern South America as far as Ecuador. Accidental in Europe.

Sp. Char. *Adult male:* Head and neck dull plumbeous, slightly glossed with lavender-purple on the side of the occiput and nape, and marked in front of the eyes by a large, somewhat crescentic, patch of white, extending entirely across the anterior portion of the head; pileum, chin, and feathers bordering the white patches, blackish; lower parts pale chestnut, or reddish buffy, thickly spotted with black, the crissum uniform black. Back and anterior scapulars dusky, marked with concentric or U-shaped bars of pale reddish buff; lesser wing-coverts and outer webs of some of the longer scapulars pale blue; middle coverts white for the exposed portion, forming a bar across the wing; speculum bronzy green, dusky terminally, with a very narrow white tip; ter-

tials black, with a central stripe of buff; a white patch at the base of the tail on each side; axillars immaculate pure white. Bill uniform black; iris brown; feet yellowish, with dusky webs. *Adult female:* Wings, only, as in the male; upper parts dusky, the feathers bordered with dull buff, the pileum and nape finely streaked; rest of head and neck, and lower parts generally, brownish white, the head and neck streaked with dusky, except on the chin and upper part of the throat, the streaks more dense immediately before and behind the eye; thus forming an indistinct stripe on the side of the head; feathers of the lower parts generally with dusky grayish brown centres, forming spots when exposed, less distinct on the abdomen, where sometimes obsolete.

Total length, about 16 inches; extent, about 25; wing, 7.00–7.50; culmen, 1.40–1.65; tarsus, 1.20–1.30; middle toe, 1.40–1.45.

The Blue-winged Teal is probably the most numerous of our smaller ducks, and, though by far the larger number occur only during the migrations, individuals may be found at all times of the year under favorable circumstances of locality and weather. The bulk of the species, however, winter in the Gulf States and southward, while the breeding range is difficult to make out, owing to the fact that it is not gregarious during the breeding season, but occurs scatteringly in isolated localities where it is most likely to escape observation.

"The flight of this duck is extremely rapid, fully as swift as that of the Passenger Pigeon. When advancing against a stiff breeze it shows alternately its upper and lower surface. During its flight it utters a soft, lisping note, which it also emits when apprehensive of danger. It swims buoyantly, and when in a flock so closely together that the individuals nearly touch each other. In consequence of this habit hunters are able to make a frightful havoc among these birds on their first appearance in the fall, when they are easily approached. Audubon has seen as many as eighty-four killed by a single discharge of a double-barelled gun.

"It may readily be kept in confinement, soon becomes very docile, feeds readily on coarse corn-meal, and might easily be domesticated. Professor Kumlien, however, has made several unsuccessful attempts to raise this duck by placing its eggs under a domestic hen. He informs me that this species is the latest duck to arrive in the spring. It is very common, and breeds abundantly, in southern Wisconsin, especially on the borders of Lake Koshkonong. It nests on the ground among the reeds and coarse herbage, generally near the water, but he has met with its nest at least half a mile from the nearest water, though always on low land. The nest is simply an accumula-

tion of reeds and rushes lined in the middle with down and feathers. This duck prefers the dryer marshes near creeks. He has always found its nests well lined with down, and when the female leaves her nest she always covers her eggs with down, and draws the grass, of which the outside of the nest is composed, over the top. He does not think that she ever lays more than twelve eggs, the usual number being eight to twelve. These are of a clear ivory white, without even the slightest tinge of green. They range from 1.80 to 1.95 inches in length, and 1.25 to 1.35 in breadth." (*Water Birds of North America.*)

Anas cyanoptera Vieill.

CINNAMON TEAL.

Popular synonyms. Red-breasted Teal; Red Teal; Red Duck; Cerceta café (Mexico).

Anas cyanoptera VIEILL. Nouv. Dict. v, 1816, 104.—A. O. U. Check List, 1886, No. 141.—RIDGW. Man. N. Am. B. 1887, 93.

Querquedula cyanoptera CASS. U. S. N. Astr. Exp. ii, 1855, 202 (Chili); Illustr. B. Cal. Tex. etc. 1855, 82, pl. 15.—BAIRD, B. N. Am. 1858, 780; Cat. N. Am. B. 1859, No. 582.—COUES, Key, 1872, 288; Check List, 1873, No. 497; 2d ed. 1882, No. 717; B. N. W. 1874, 567.—HENSH. Zoöl. Wheeler's Exp. 1875, 477.—RIDGW. Orn. 40th Par. 1877, 623; Nom. N. Am. B. 1881, No. 610.—B. B. & R. Water B. N. Am. i, 1884, 535.

Anas rafflesi KING, Zoöl. Jour. iv, 1828, 87; Suppl. pl. 29 (Straits of Magellan).

Pterocyanea cæruleata "LICHT." GRAY, Gen. B. iii, 1849, 617.

HAB. Western America, from the Columbia River to Chili, the Argentine Republic, and Falkland Islands. Casual in Eastern North America (Louisiana, Illinois, Florida?).

SP. CHAR. *Adult male:* Head, neck, and lower parts rich purplish chestnut, duller—sometimes quite dusky—on the abdomen; pileum and crissum black; scapulars and part of the back chestnut, marked with U-shaped bars of black, the middle of the back more dusky; tertials black, with a central stripe of buff; longer scapulars similar, the outermost feathers with the outer webs light blue; lesser wing-coverts plain light blue; middle coverts dusky, tipped with white; speculum uniform green, varying from metallic grass-green to bronze; primaries and primary-coverts dusky; upper tail-coverts dusky, edged with pale fulvous; rectrices dusky, edged with brownish white or pale brownish gray; axillars immaculate pure white. Bill deep black; iris orange; feet orange, joints and webs blackish. *Adult female:* Similar to that of *A. discors*, but larger and deeper colored, only the upper part of the throat (sometimes only the chin) unstreaked, the abdomen usually distinctly spotted; chest deeply tinged with light brown. Bill dusky, paler beneath and along edge; iris brown; legs and feet ochreous-drab. *Young male:* Similar to the adult female, but markings on the lower parts all distinctly longitudinal or streak-like. *Downy young:* Above dark olivaceous, relieved by a longitudinal oblong oblique spot of deep greenish buff on each side the back (behind the wings), and a similar spot of clearer yellowish on each side of the base of the tail; the anterior spots confluent with the yellow of the sides, the posterior ones isolated by the extension beneath them of the olivaceous of the tail. Pileum and hind neck similar to the back, but darker; forehead, broad superciliary stripe, and rest of the head and neck, except as described, with entire lower parts, deep yellowish buff, the side of the head marked with a distinct narrow stripe of dark brown extending from the upper base of the maxilla to the eye, and thence back to the occiput.

Total length (adult), about 15.50–16.50 inches; extent, 21.00–24.50; wing, 7.20–7.75; culmen, 1.65–1.85; tarsus, 1.25–1.35; middle toe, 1.40–1.50.

Examples from Chili and the Argentine Republic are larger and more richly colored than those from the United States; the white bar across the end of the middle coverts narrower, and nearly concealed by the overlying last row of lesser coverts. The differences, however, may not prove constant.

The female of this species is very difficult to distinguish from that of *A. discors*, and it is probably not possible always to separate them with certainty. The present species averages considerably larger, however; the wings in the adult female ranging from 7.20 to 7.50 inches, the culmen 1.70 to 1.75, against 6.70 to 7.00, and 1.40 to 1.50, as in *A. discors*. The colors are also deeper, nearly the whole throat being streaked, the breast deeply tinged with light brown, and the abdomen almost always distinctly spotted.

This western representation of the Blue-winged Teal, is common as far east as middle Kansas, where, according to Col. N. S. Goss, it probably breeds, but nearer the Mississippi River it is of irregular and uncertain occurrence, having been only once or twice taken in Illinois.

Its habits are very similar to those of the Blue-wing.

Subgenus **Nettion** Kaup.

Nettion Kaup, Entw. Eur. Thierw. 1829, 95, 196. Type, *Anas crecca* Linn.

Subgen. Char. Bill shorter than head, narrow, depressed (except at base), the edges parallel; tarsus shorter than bill or middle toe; nape with a small mane-like tuft; rectrices more or less acuminate, the middle pair longest.

This subgenus is very readily distinguished from *Querquedula* by the conspicuously different form of the bill, which is far more like that of *Dafila*, though much smaller, being conspicuously more depressed terminally and proportionally deeper through the base than in *Querquedula*, while the lower edge or maxillary tomium is either gently convex throughout (as in the southern species), or straight anteriorly and decidedly convex posteriorly (as in the northern forms), the lamellæ being thus completely hidden. In *Querquedula*, on the other hand, the terminal portion of the tomium is strongly convex, and the posterior half cut away, as

it were, so as to fully expose the lamellæ. Through the forms occurring in the southern hemisphere, this genus leads directly to *Pœcilonetta*, which in turn is intermediate between *Nettion* and *Dafila*.

The two species of *Nettion* occurring in the northern hemisphere are much alike, the males being very handsome in plumage. They may be distinguished as follows:

COMMON CHARACTERS. *Adult males:* Head and upper half of the neck chestnut-rufous, marked with a large patch of metallic green on each side of the head, behind the eye; chin and upper part of throat dull black; nuchal tuft blue-black; lower part of the neck, upper part of the back, scapulars, and lateral parts of the body beneath, undulated with black and white; outer scapulars marked with black and white; speculum bright metallic green, the lower feathers black, tipped with white; crissum black centrally, creamy buff laterally. *Adult females:* Wing, only, as in the males; elsewhere varied with dusky and brownish white, the former prevailing above, the latter beneath; the abdomen nearly or quite immaculate.

1. **A. carolinensis.** A broad white bar across side of breast, before the wing; inner webs of outer scapulars vermiculated with dusky and brownish white, the outer webs marked with a longitudinal lanceolate spot of black, bordered internally with a white line.

[2. **A. crecca.** No white bar on side of breast; inner web of outer scapulars wholly, and outer web partly, white, the exposed surface of outer webs almost entirely black: undulations of sides, etc., much coarser than in *A. carolinensis*. *Hab.* Palæarctic Region, occasional in eastern North America.]

A. crecca, the common teal of Europe, has several times been taken in the Atlantic States, but has not yet been detected in Illinois.

Anas carolinensis Gmel.

GREEN-WINGED TEAL.

Popular synonyms. Green-wing; American Green-winged Teal; Red-headed Teal; Mud Teal (Maine); Winter Teal (Long Island); Cerceta de listo verde (Mexico).

Anas crecca, var. FORST. Philos. Trans. lxii, 1772, 383, 419.

Anas (Boschas) crecca, var. SW. & RICH. F. B.-A. ii, 1831, 443,—NUTT. Man. ii, 1835, 400.

Anas crecca WILS. Am. Orn. viii, 1814, 101, pl. 60, fig. 1 (not of LINN.).—AUD. Orn. Biog. iii, 1835, 218; v, 1839, 616, pl. 228.

Anas carolinensis GMEL. S. N. i, pt. ii, 1878, 533.—AUD. Synop. 1839, 281; B. Am. vi, 1843, 231, pl. 392.—A. O. U. Check List, 1886, No. 139.—RIDGW. Man. N. Am. B. 1887, 94.

Querquedula carolinensis STEPHENS, Shaw's Gen. Zoöl. xii, pt. ii, 1824, 128.—COUES, Key, 1872, 287; Check List, 1873, No. 495; 2d ed. 1882, No. 715; B. N. W. 1874, 565.—HENSHAW, Zoöl. Wheeler's Exp. 1875, 475.

Nettion carolinensis BAIRD, B. N. Am. 1858, 777; Cat. N. Am. B. 1859, No. 579.—RIDGW. Orn. 40th Par. 1877, 623; Nom. N. Am. B. 1881, No. 613.—B. B. & R. Water B. N. Am. ii, 1884, 2.

Anas americana VIEILL. Enc. Meth. 1823, 155.

"*Anas sylvatica* VIEILL. ?"

HAB. North America in general, breeding chiefly north of the United States, migrating south as far as Honduras and Cuba. Greenland.

SP. CHAR. *Adult male:* Head and neck rich chestnut-rufous, inclosing a broad patch of soft dark metallic green on each side of the occiput, from the eye (which it surrounds) down the sides of the nape, where the two areas of the opposite sides touch a short nuchal crest of bluish-black. The green patch bordered anteriorly and beneath by a yellowish white line, and a less distinct line of the same bordering the base of the upper mandible, extending thence back to, and indistinctly following, for a short distance, the upper anterior portion of the green patch. Chin and upper part of the throat dull black. Front of the chest deep pinkish cream-color, with roundish and transversely ovate spots of black. Collar round the lower neck, sides of the chest, sides, and flanks, very delicately and beautifully waved with black upon a white ground; outer scapulars similarly waved. Sides of the breast with a large transverse bar of plain white. Crissum rich deep cream-color, bounded anteriorly, and divided medially, with velvety black; post-femoral region waved like the flanks; rest of lower parts plain white, sometimes tinged with cream-color. Back, scapulars, rump, wing-coverts, primaries, and tail, plain slate-grayish. Outer row of scapulars with their outer webs about half velvety black bordered interiorly with a white line. Last row of coverts broadly tipped with deep ochraceous; speculum opaque black, narrowly tipped with white, the four or five upper feathers with their outer webs richly brilliant soft metallic green, varying from golden to violaceous, according to the light. Bill black; iris brown; feet light fleshy (horn-color when dried). *Adult female:* Wing as in the male, but duller. Above grayish dusky, variegated with edgings and transverse bars of ochraceous-white. Ground-color of the head, neck, and lower parts, dingy whitish, more or less tinged with ochraceous; head and neck speckled with dusky, the spots enlarged and aggregated on the pileum, so as to form the prevailing color, and also along the upper border of the ear-coverts, producing a stripe behind the eye. Chest, sides, and flanks more heavily spotted with dusky. Abdomen sometimes plain, but usually speckled. Bill brownish; iris brown; feet pale brown (fleshy in life) *Young male:* Similar to the adult female, but entire abdomen and sides immaculate white. *Downy young:* Above grayish brown, with a light grayish-buff spot on each side the back, and a similar pair on the rump; wings crossed near the end by a light grayish-buff bar. Head, neck, and lower parts light dull buff; crown and occiput covered by an elongated patch of grayish brown (darker than the back), this scarcely reaching the forehead, but continued down the hind neck to the brown of the back; a dusky streak behind the eye, not reaching to the occiput; below the posterior end of this, an oblong spot of grayish brown.

Total length, about 14 inches; extent 20.00–24.50; wing, 6.25–7.40; culmen, 1.40–1.60; tarsus, 1.25; middle toe, 1.30–1.35.

Many specimens, both males and females, have the lower parts tinged with orange-rusty like the stain on the head of the swans and white geese. Sometimes this tinge pervades the whole under surface, and is occasionally so deep as to give the lower parts a uniform rusty or almost chestnut aspect. Adult females usually have the abdomen and sides thickly spotted or flecked with brown, being thereby readily distinguished from the young males, which have the whole abdomen, etc., immaculate white.

This beautiful little duck is a common species during migrations, and sometimes passes the winter in the southern portions of the State. Although stated by Kennicott to breed in the

northern part, there appears to be no recent record of its doing so. Professor Cooke says that it "breeds in Manitoba and along our northern border."

"Mr. Robert Kennicott, in his notes on this species, states that it is very rare on the upper Yukon River, although he found it abundant in Oregon and in Washington Territory, and throughout British America as far north as latitude 70°; but he did not see it anywhere in the Mackenzie Region in any considerable abundance. As it is more common in the Atlantic States than in the valley of the Mississippi, the main body breed more toward the northeast, beyond the limits of the United States in the region of Hudson's Bay. Though arriving in this country among the earliest of the migrating ducks, this species is quite late in leaving the Yukon and the Mackenzie. Mr. Kennicott saw it October 2 at Fort Liard. The nests found by him were in nearly open ground, among moss, and generally far from water. In one instance he saw the nest of this duck at the foot of a small spruce in a mossy, half-barren, small dry plain, and at least forty rods from water. This nest was a simple depression in the moss, but thickly lined with down, and well protected by the overhanging branches of the spruce. The female fluttered slowly off along the ground at his approach, and the nest was found to contain eight eggs. According to Mr. Dall nests of this species frequently have from sixteen to eighteen eggs.

"Audubon says that the food of the Green-winged Teal consists principally of the seeds of grasses—which are collected when floating, or while still adhering to their stalk—small acorns, fallen grapes or berries, as well as aquatic insects, worms, and small snails. It is much more particular in the selection of its food than are most ducks, and its flesh is therefore delicious, and probably better that that of any other of the duck tribe. Audubon adds that when this bird has fed on wild oats at Green Bay, or soaked rice in the fields of Georgia or Carolina, it is much superior to the Canvas-back in tenderness, juiciness, and flavor.

"On land it moves with more grace and ease than any other species except the Wood Duck, and it can run with considerable

speed without its feet becoming entangled. In the water also it moves with great ease and rapidity, and on the wing it is one of the swiftest of its tribe. It rises from the water with a single spring, and so swiftly that it can only be hit by a very expert marksman; and it also dives readily when wounded. This is a fresh-water bird, and it is very rarely met with near the sea. Its migrations are over the land, and not along the sea-shore." (*Water Birds of North America.*)

A nest containing ten eggs was found by Mr. H. W. Henshaw, near Ft. Garland, Colorado, under a sage-bush, perhaps thirty feet from the water's edge. A deep hollow had been scooped in the sand, and lined warmly with fine grass and down, evidently taken from the bird's own breast, which was plucked nearly bare. The eggs were of a pale yellowish color, and averaged 1.81 in length by 1.31 in diameter.

Subgenus **Chaulelasmus** Gray.

Chaulelasmus Gray, 1838, 56. Type, *Anas strepera* Linn.

Chauliodus Swains, F. B.-A. ii, 1831, 440. Type, *Anas strepera* Linn. (Not of Bloch, 1801.)

Chauliodes Eyton, Mon. Anat. 1838, 43. Same type. (Not of Latreille, 1798.)

Subgen. Char. Culmen shorter than middle toe, without claw; distance from anterior border of nostril to tip of upper mandible more than three times the distance from the same point to the nearest loral feathers; lamellæ very fine and numerous, more than 30 being visible from the outside; tail-feathers 16.

But two species of this subgenus are known; the common and widely diffused *A. strepera* and the more recently discovered *A. couesi* (Streets) of Washington Island, in the South Pacific Ocean. The latter is very similar to *A. strepera*, having the same form and essentially the same coloration, but is much smaller, with several differences in plumage. The sides are white, coarsely spotted with grayish, instead of finely undulated with the same, as is the case with the adult male of *A. strepera;* but this may be owing to a difference of age, the type of *A. couesi* being an immature bird.

Anas strepera Linn.

GADWALL.

Popular synonyms. Gray Duck; Gray Widgeon (Savannah, Ga.); Speckle-belly; Creek Duck (Long Island); Blaten Duck (coast of New Jersey); Pato pardo de Grupo (Mexico).

Anas strepera Linn. S. N. ed. 10, i, 1758, 125; ed. 12, i, 1766, 200.—Wils. Am. Orn. viii, 1814, 120, pl. 71.—Nutt. Man. ii, 1834, 383.—Aud. Orn. Biog. iv, 1838, 353, pl. 348; Synop. 1839, 378; B. Am., vi, 1843, 254, pl. 388.—A. O. U. Check List, 1886, No. 135.—Ridgw. Man. N. Am. B. 1887, 95.

Anas (Chauliodus) streperus Sw. & Rich. F. B.-A. ii, 1831, 440.

Chaulelasmus streperus "Gray, 1838;" List B. Br. Mus. 1844, 139.—Baird, B. N. Am. 1858, 782; Cat. N. Am. B. 1859, No. 584.—Coues, Key, 1872, 286; Check List, 1873, No. 491; 2d ed. 1882, No. 711; Birds N. W. 1874, 563.—Hensh. Zoöl. Wheeler's Exp. 1875, 474.—Ridgw. Orn. 40th Par. 1877, 622; Nom. N. Am. B. 1881, No. 604.—B. B. & R. Water B. N. Am. i, 1884, 506.

Anas strepera americana Max. Jour. für Orn. ii, 1842, 169.

"*Chaulelasmus americana*, Br." (Gray).

"*Anas cinerea* et *subuiata*, S. G. Gmelin." (Gray).

Anas kekuschka Gmel. S. N. i, pt. ii, 1788, 531.

"*Anas mail*, Hodgson" (Gray).

"*Anas capensis*, Swainson" (Gray).

Hab. Nearly cosmopolitan (Europe, Asia, Africa, and North America). Temperate North America in general, breeding chiefly within the United States; West Indies.

Sp. Char. *Adult male in fall, winter, and spring:* Ground-color of the head and neck pale brown, or brownish white, thickly speckled with black; on the pileum the brown more uniform, and the specks obsolete; on the occiput, when present, they incline to the form of transverse bars. Chest marked with horseshoe-like bars, or crescents, of white and black, the bars of the latter wider. Lateral portions of the body beneath, back, and scapulars finely waved, in curved transverse lines, with slate-color and white. Many of the longer scapulars plain brownish gray, broadly edged with a lighter, more fulvous tint. Rump plain dull slate. Tail-coverts, above and below, intense opaque velvety black. Tail ashy, faintly edged with white. Middle rows of wing-coverts bright chestnut, the anterior coverts brownish gray, and the posterior ones deep black; last row deep velvety black. Speculum immaculate pure white, the lower feathers ashy (some with black on outer webs,) narrowly tipped with white; tertials plain pale ash, the primaries a darker shade of the same. "Bill bluish black. Iris reddish hazel. Feet dull orange-yellow, claws brownish black, webs dusky" (Audubon). *Adult male, in summer:* "Crown brownish black, with a greenish tinge; an indistinct streak through the eye, dark brown; rest of the head and neck dull brownish white, marked with blackish brown, as in the previously described bird [adult male in spring]; back, rump, and upper tail-coverts dark blackish brown, each feather margined with rusty red; wings and tail as in the bird above described; breast dull rusty red, each feather with a central black spot; flanks dark brown, broadly marked and margined with dull rufous; the rest of the under parts dull white, each feather having a central blackish brown drop-shaped mark". (Sharpe & Dresser.)

Adult female: Colors chiefly brownish dusky and brownish white, in longitudinal streaks on the head and neck, and in irregular transverse spots and bars on other portions. On the upper surface the dusky prevails, and on the lower parts the whitish predominates. Wing nearly as in the male, but the chestnut usually absent, the black less extended, and the gray of the coverts generally more or less barred and tipped with white. Abdomen and lower part of the breast pure white; throat finely streaked with dusky. *Downy young:* "Covered with soft short down; head, nape, back, and rump, dark dull brown, on each side of the rump and back of each wing-joint a sulphur-yellow spot, the wing-joints being marked with that color; forehead, space round the eye, throat, and chest pale sulphur-yellow; abdomen white, shaded with sulphur-yellow, on the lower part sooty gray." (Sharpe & Dresser.)

Male. Wing, 10.25–11.00 inches; culmen, 1.60–1.75; width of bill, .60–.75; tarsus, 1.45–1.70; middle toe, 1.80–1.90. *Female.* Wing, 10.00–10.10; culmen, 1.55–1.65; width of bill, .60–.70; tarsus, 1.60; middle toe, 1.75–1.80.

Although one of the above diagnoses will fit almost any example of this species, there is yet a very considerable extent of individual variation noticeable in a large series. Thus, No. 17,040 (Washington, D. C., Feb. 25, 1860; C. DREXLER) has the uniform brown of the pileum coming down over the side of the head to a line on a level with the lower eyelid, the whole upper half of the head being thus nearly free from specks; while that portion behind the eye has a faint, but very perceptible, rose-purple reflection—this part of the head calling strongly to mind the head-pattern of *A. carolinensis* and *A. americana*. On the other hand, an adult male from Philadelphia (No. 46,658, J. KRIDER) has even the top of the head spotted. No. 9,791, adult male, Fort Steilacoom, Washington (DR. GEORGE SUCKLEY), has the pileum almost chestnut, the brown having there so deep a reddish cast; the lower neck is nearly plain pale ochraceous, abruptly defined against the darkly colored jugulum. Specimens from Cape St. Lucas and Utah present no unusual features.

All American specimens differ uniformly from the single European pair before us, in several very tangible respects. The European male has the neck quite deeply ochraceous, while in the American ones there is seldom more than a mere tinge of this color; the chest is pervaded by a wash of a more pinkish tinge of ochraceous, while there is appreciably less regularity and clearness in the markings of that region. The longer scapulars are more deeply tinged with fulvous, and the finely undulated portions are pervaded with a brownish wash, entirely wanting in the American series. The measurements of this specimen (No. 57,187, Europe; Schlüter Collection) are as follows: Wing, 10.80 inches; culmen, 1.65; width of bill, .70; tarsus, 1.55; middle toe, 1.85. The female specimen from Europe is very similar to North American examples, but is rather more deeply colored, the dark centres to the feathers being nearly deep black. The whole throat is immaculate white. The measurements are as follows: Wing, 9.50 inches; culmen, 1.50; tarsus, 1.35; middle toe, 1.60.

According to Professor Cooke,* the Gadwell "winters abundantly in the Gulf States and sometimes in Illinois in mild winters; it is also known to winter near a warm spring in Wyoming. It breeds locally throughout most of its range."

Subgenus **Mareca** Stephens.

Mareca Stephens, Shaw's Gen. Zoöl. xii, pt. ii, 1824, 130. Type, *Anas penelope* Linn.

Subgen. Char. Bill small, shorter than the head, rather narrow, the edges parallel to near the end, where they gradually converge to a rounded tip; culmen gently concave; lamellæ of the maxillæ almost concealed; feet small, the tarsus about as long as the bill. Adult male in winter with the scapulars and tertials (in the North American species the tail-coverts and rectrices also) lanceolate.

The two North American species of the subgenus *Mareca* may be distinguished as follows:

Common Characters (adult males in winter dress). Forehead white; posterior half of the middle wing-covert region white, forming a large patch of this color; abdomen immaculate white; speculum velvety black, with or without green.

1. **A. penelope.** Head and neck plain rufous, the forehead and part of the crown white; ground-color of the dorsal region, sides, and flanks, whitish.
2. **A. americana.** Head and neck whitish, speckled with black, and with a dark metallic-green space on the side of the occiput (sometimes continued down the nape); ground-color of the dorsal region, sides, and flanks, vinaceous or pinkish cinnamon.

Anas penelope Linn.

WIDGEON.

Popular synonyms. European Widgeon; Red-headed Widgeon.

Anas penelope Linn. S. N. ed. 10, i, 1758, 126; ed. 12, i, 1766, 202.—Naum. Vög. Deutschl. xi, 1842, 724, pl. 305.—Reinh. Ibis, iii, 1861, 12 (Greenland).—A. O. U. Check List, 1886, No. 136.—Ridgw. Man. N. Am. B. 1887, 96.

Mareca penelope Selby, Br. Orn. ii, 324.—Baird, B. N. Am. 1858, 734; Cat. N. Am. B. 1859, No. 586.—Coues, Proc. Essex Inst. v, 1868, 299 (New England); Key, 1872, 268; Check List, 1873, No. 492; 2d ed. 1882, No. 712; B. N. W. 1874, 564 (foot-note).—Ridgw. Nom. N. Am. B. 1881, No. 606.—B. B. & R. Water B. N. Am. i, 1884, 517.

Anas cagolca S. G. Gmel. Reise i, 1770, 77.

Mareca fistularis Stephens, Shaw's Gen. Zoöl. xii, pt. ii. 1824, 131, pl. 50.

Wigeon, Yarr. Brit. B. ed. 2, iii, 286; ed. 3, iii, 287, fig.

Hab. Northern hemisphere in general, but less uniformly distributed in North America, where, however, occurring not uncommonly in New York, Pennsylvania, Maryland, Virginia, North Carolina, Florida, Illinois, Wisconsin, California, etc.; breeding in the Aleutian Islands, Alaska.

* *Bird Migration in the Mississippi Valley*, p. 65.

SP. CHAR. *Adult male in winter.* Head and neck plain cinnamon rufous, abruptly defined below, and becoming paler next the bill; forehead and pileum medially immaculate white; a few blackish feathers around the eyelids. Chest and sides of the breast pinkish vinaceous, the tips of the feathers paler. Sides, flanks, and entire dorsal surface delicately waved with transverse zigzag bars of black and pure white, the bars of the latter rather the narrower. Wing-coverts immaculate pure white, except the anterior portion of the lesser-covert region, which is deep ashy; last row of coverts tipped with velvety black; tertials velvety black, shafted and edged with pure white, the lower one with the entire lower web pure white. Speculum soft metallic green on the anterior half or two thirds, the terminal portion velvety black. Primaries plain slate-grayish. Tail-coverts (both upper and lower) deep black, with a very faint bluish gloss; rest of the lower parts immaculate white. Tail-feathers dark ashy, edged with ashy white. Bill "light grayish blue, with the tip, including the unguis, black;" iris "hazel brown;" legs and feet "light grayish blue." (MACGILLIVRAY.)

Wing, 10.00–11.00 inches; culmen, 1.35–1.45; tarsus, 1.45–1.60; middle toe, 1.65–1.75.

Adult female. "Much smaller and differently colored. The bill, iris, and feet, however, are as in the male. The head and upper neck are yellowish red, with small greenish black spots, the feathers being barred with that color, of which there is more on the upper part of the head. The feathers of the upper parts in general are dusky brown, edged with brownish red or whitish, and barred with the same. The wings are dusky gray; the coverts in the part which is white in the male tipped with that color, the secondary coverts with an indication of a dark terminal bar; the speculum grayish, without lustre; the inner secondaries marked somewhat as in the male, but with dark gray in place of gray. The tail-feathers brownish gray, edged with brownish white. On the lower forepart and sides of the neck the feathers are obscurely barred with reddish brown and brownish gray; the sides are similar; the breast and abdomen white; the feathers under the tail white, barred with brown, as are the smaller lower wing-coverts; the larger pale gray." (MACGILLIVRAY.) Length, about 19.25 inches; extent, 32.50; wing, 10.00; tail, 4.00; culmen, 1.50; tarsus, 1.50; middle toe, 1.25.

Young male. Head, neck, chest, sides, and flanks, umber-brown, varying to a cinnamon shade, the head and neck thickly streaked with black, and the feathers of the chest sides, etc., centred with dusky. Back and scapulars dusky, the feathers broadly bordered with dull fulvous; crissum irregularly streaked and spotted with dusky; rump and upper tail-coverts slaty brown, bordered with dull whitish. Wing as in the adult, except that the coverts are dull cinereous broadly bordered with white. Lower parts, except as described, pure white.

An adult male from Alexandria, Va. (No. 29,519), has the rufous of the head perfectly uniform, with only a few blackish feathers immediately around the eye, and a suffusion of the same on the chin; while the pinkish of the chest joins the rufous of the neck. No. 1,271, New York market, has the sides of the head speckled minutely with greenish black, the nape and entire throat clouded with the same, and the pinkish of the chest separated from the rufous of the neck by a narrow indistinct collar of whitish, undulated with blackish. No. 10,376, from Florida, approaches still more closely to *A. americana* in having also the occiput spotted with black, the eye more broadly surrounded with greenish, the ground-color of the cheeks nearly white, and the sides pervaded by a tinge of the

pinkish of the chest. No. 62,525, from St. Paul's Island, Alaska, is most like the Alexandria specimen.

A young male (No. 57,119, Europe) has the brown of the head, neck, sides, and flanks, almost chestnut; the wing as in the adult, and the dorsal region mostly clothed with feathers of the adult dress.

According to Dr. Brewer (*Water Birds of North America*, Vol. I., p. 519), "two instances are on record" of the occurrence of the Widgeon in Illinois. Its habits are quite similar to those of the Baldpate.

Anas americana Gmel.

BALDPATE.

Popular synonyms. American Widgeon; Green-headed Widgeon; Bald-head; Bald-face; Bald-crown; White-belly; Poacher (Detroit, Mich.); Wheat Duck (Oregon).

Anas americana Gmel. S. N. i, pt. ii, 1788, 526.—Wils. Am. Orn. viii, 1814, 86, pl. 69, fig. 1.—Aud. Orn. Biog. iv, 1838, 337, pl. 345; Synop. 1839, 279; B. Am. vi, 1843, 259, pl. 389.—A. O. U. Check List, 1886, No. 137.—Ridgw. Man. N. Am. B. 1887, 96.

Mareca americana Stephens, Shaw's Gen. Zoöl. xii, pt. ii, 1824, 135.—Sw. & Rich. F. B.-A. ii, 1831, 445.—Baird, B. N. Am. 1858, 783; Cat. N. Am. B. 1859, No. 585.—Coues, Key, 1872, 286; Check List, 1873, No. 493; 2d ed. 1882, No. 713; Birds N. W. 1874, 564.—Hensh. Zoöl. Wheeler's Exp. 1875, 475.—Ridgw. Orn. 40th Par. 1877, 622; Nom. N. Am. B. 1881, No. 607.—B. B. & R. Water B. N. Am. i, 1884, 520.

Mareca penelope, b., Blasius, B. Eur. 1862, 21.

Hab. North America in general, north to Arctic Ocean, south, in winter, to Guatemala and Cuba. Accidental in Europe. Breeds nearly throughout its range.

Sp. Char. *Adult male in winter:* Forehead and middle of crown (longitudinally) white, generally immaculate; ground-color of head and neck white, sometimes more or less soiled with grayish or brown, and thickly speckled with black; a broad space of metallic blackish green on the side of the occiput, running forward to the eye, and sometimes down the nape, where the two spaces are confluent. Chest plain pinkish vinaceous; sides and flanks the same, delicately waved with black; lower tail-coverts velvety black; rest of lower parts pure white. Back and scapulars grayish white, more or less tinged with the color of the sides, and similarly waved with black. Wing-coverts immaculate pure white, the anterior portion of the lesser-covert region ashy, and the last row tipped with velvety black; speculum soft metallic green anteriorly, velvety black posteriorly; tertials velvety black, sharply edged with white, the lower one with its lower edge entirely pure white; primaries plain slate-grayish. Rump ashy, minutely waved on the edges of the feathers; upper tail-coverts velvety black, the inner webs mostly grayish; tail hoary grayish. Bill light grayish blue, the end black; iris brown; legs and feet light bluish. Length, about 20.00 inches; wing, 10.25–10.75; culmen, 1.30–1.50; tarsus, 1.45–1.65; middle toe, 1.65–1.85. *Adult female:* Above, dusky grayish brown, with transverse, rather distant, bars of dull white or light ochraceous. Wing-coverts dark dull ashy, broadly tipped and bordered with white; speculum dull black. Head and neck streaked with blackish upon a dull whitish ground, the former color prevailing on the nape and behind the eye. Chest pale grayish vinaceous, the feathers darker beneath the surface; sides and flanks deeper vinaceous; lower tail-coverts transversely spotted with brown; rest of lower parts pure white. Somewhat smaller than the male (length about 18.00 inches). *Young male:* Similar to the adult female, but the colors more pronounced and the pattern better defined, especially on the wing. *Downy young:* Above,

dark olive, with a sepia tinge; a spot of pale greenish fulvous on the posterior half of the wing, one on each side of the back, and one on each side of the rump. Lower parts, including head and neck, pale fulvous; a distinct blackish olive stripe from bill to and back from the eye, with a wide and conspicuous superciliary stripe of fulvous above it.

The chief variation in the plumage of adult males of this species consists in the extent of the green patch and the amount of black spotting on the head, the pureness of the white on the forehead, and the extent of the white patch on the wing-coverts. The green patch on the sides of the occiput is usually poorly defined, and broken up by lighter spotting; but in No. 21,426, Washington, D. C., and No. 84,712, from southern Ohio (Dr. F. W. LANGDON), it is as conspicuous as in the adult male of *A. carolinensis*, and of very similar extent and form. Anteriorly it surrounds the eye, and posteriorly it passes down the nape, where the two opposite spaces are confluent for the entire length of the neck); its outlines are firm throughout, and its surface is entirely unbroken by admixture of white. In the former specimen the black spotting is so aggregated on the throat that the gular region is almost uniformly dusky, while the spots at the lower end of the white portion of the neck are so large as almost to blend into a collar, uniting the green of the nape with the black of the throat. All the other characters of the species are very much exaggerated in this specimen. Younger specimens, just possessed of the adult dress, are usually distinguished by having the white wing-covert patch clouded with ash, the green of the head poorly defined, and the white of the forehead more or less speckled.

"The Baldpate ranges over the whole of North America. In winter it is common in the Gulf States and lower part of the Misissippi Valley. It breeds chiefly in the North, but is known to breed in Manitoba, Dakota, Minnesota, Nebraska, Kansas, Illinois, and Texas. Its movements in migration resemble those of the Gadwall." (COOKE.)

"The Widgeon breeds rather abundantly throughout the whole of British America, as far north as the Arctic Ocean, but only rarely in the extreme northern parts of the United States, both east and west of the Rocky Mountains. In October and April it visits in large numbers the rivers and marshes, as well as both sea-coasts, of the northern United States, and is much sought by hunters, its flesh being excellent, and the bird generally in good

condition. It winters in the Southern States, Mexico, and the West Indies. Though in winter the Widgeon collects in very large flocks, it passes over the northern parts of the Mississippi Valley in small bands, and usually arrives at the Mackenzie and the Yukon in pairs, or in small parties of three or four together. It reaches Slave Lake and the Yukon early in May, and begins to nest about the middle of that month, though some do not do so till the early part of June. It is rather more common west of the mountains than in the Mackenzie region, and considerable numbers are found in the breeding season on Lake Winnipeg, where several were obtained by Mr. Donald Gunn. In the north the Widgeon exhibits a greater preference for rivers and open lakes than most of the other fresh-water ducks, which prefer the grassy lakes and marshes. Most of the nests which Mr. Kennicott observed were near rivers in places not frequented by other ducks, except sometimes by the Mallard. The favorite situation for the nest is remarkable; for while the other ducks—except, perhaps, the teal—choose the immediate vicinity of water, he found the Widgeon always breeding at some considerable distance from it. Several of the nests obtained on the Yukon were fully half a mile from the river—the nearest water. He invariably found the nest among dry leaves, upon high, dry ground, either under large trees or in thick groves of small ones—frequently among thick spruces. The nest is rather small—simply a depression among the leaves—but thickly lined with down, with which, after incubation is begun, the eggs are covered when left by the parent. The nest is usually placed at the foot of a tree or bush, with generally no attempt at concealment. The female, when started from her nest, rises silently into the air, and usually flies to the nearest water, though sometimes she will alight on the ground a few rods distant. The males remain more or less in the vicinity for some time after the females begin to incubate; but when the time of moulting arrives they retire to the grassy marshes and edges of lakes for concealment, leading a solitary life. The young, while unable to fly, are frequently found seeking the shelter of grassy lakes. As soon, however, as they can fly they return to their favorite river-shores and open feeding places, where they obtain aquatic insects, a few small shells, and the seeds and roots of various plants. In the fall

the broods often separate before leaving for the South; this they do about the middle of September. Mr. Kennicott several times found perfect eggs of this species—though never of any other duck—dropped along the shores of rivers, at their feeding-places. This bird is said to make its first appearance on the Chesapeake about the last of October.

"While the Canvas-backs and the Black-heads dive and pull up by the roots the *Vallisneria* grass, the Bald-pates manage to obtain their full share of it, and at times succeed in robbing them of the whole. At this time the flavor of the Bald-pate is considered preferable to that of even the far-famed Canvas-backs. Of all the ducks that are found in the Chesapeake, the Widgeon is said to be one of the most difficult to attract to the shore by the process known as 'tolling.' In wing-shooting it is regarded by the hunters as a great nuisance. It is not only so shy that it avoids the points of land, but by its whistling and confused manner of flight it alarms the other species. During its stay in those waters it is the constant companion of the Canvas-backs, upon whose superiority in diving it depends in a large degree for its food, stealing from them, as they rise to the surface of the water, the tender roots of the plant of which both are so fond. When in good condition the flesh of the Bald-pate cannot easily be distinguished from that of the Canvas-back. It is also thought that birds killed on other waters, though excellent eating, are far inferior to those from the flats of the Chesapeake. The Bald-pate is said to visit the rice-fields of the South during the winter in considerable numbers." (*Water Birds of North America.*)

Genus **DAFILA** Stephens.

Dafila Stephens, Shaw's Gen. Zoöl. xii, pt. ii, 1824, 126. Type, *Anas acuta* Linn.
Phasianurus Wagl. Isis, 1832, 1235. Same type.

Gen. Char. Bill longer than the head, narrow, the edges parallel, deep through the base, but otherwise much depressed, the basal portion of the culmen much ascending. In the male, the scapulars, tertials, and middle rectrices lanceolate, the latter elongated considerably beyond the other tail-feathers. The adult male in winter plumage very different from the adult female, but the sexes much alike in summer.

As defined above, the genus *Dafila* includes but a single species, the *D. acuta*, or common Pin-tail, of the northern hemisphere. Several South American species have been referred to it; but they all differ in having the sexes alike, in the dull (much

spotted) coloration, and in the very slight elongation of the middle rectrices. They constitute a group somewhat intermediate between *Dafila* and *Nettion*, and are again directly connected with the latter by several small ducks of the southern hemisphere, usually referred to the genus *Querquedula* (e. g. *flavirostris*, of South America, and *eatoni*, of Kerguelen Island). The genus *Pœcilonetta* (type, *Anas bahamensis* LINN.) was proposed for this group by Kaup, and should probably be retained for it.

Dafila acuta (Linn.)

PINTAIL.

Popular synomyns. Sprig-tail; Spike-tail; Pike-tail; Picket-tail; Pheasant Duck; Sea Pheasant, Water Pheasant; Smee, Smees, or Smethe (New Jersey); Long-neck; Pato golondrino (Mexico).*

Anas acuta LINN. S. N. ed. 10, i, 1758, 126; ed. 12, i, 1766, 202.—WILS. Am. Orn. viii, 1814, pl. 68, fig. 3.—NUTT. Man. ii, 1834, 386.—AUD. Orn. Biog. iii, 1835, 214; v, 1839, 615, pl. 227; Synop. 1839, 279; Birds Am. vi, 1843, 266, pl. 390.

Dafila acuta BONAP. Comp. List, 1838, 56.—BAIRD, B. N. Am. 1858, 776; Cat. N. Am. B. 1859, No. 578.—COUES, Key, 1872, 286; Check List, 1873, No. 490; ed. 1882, No. 710; Birds N. W. 1874, 561.—HENSH. Zoöl. Wheeler's Exp. 1875, 473.—RIDGW. Orn. 40th Par. 1877, 622; Nom. N. Am. B. 1881, No. 605; Man. N. Am. B. 1887, 98.—B. B. & R. Water B. N. Am. i, 1884, 511.—A. O. U. Check List, 1886, No. 143.

"*Anas alandica* SPARRM. Mus. Carls. iii, pl. 60."

Anas sparrmanni LATH. Ind. Orn. ii, 1790, 876.

Anas caudacuta PALL. Zoog. Rosso-As. ii, 1826, 280.

Anas longicauda BRISS. Orn. vi, 1760, 366, pl. 34, fig. 1, 2.

Anas caudata BREHM, Vög. Deutschl. 869.

Dafila acuta, var. *americana* BONAP. Compt. Rend. xliii, 1856.

HAB. Nearly the entire northern hemisphere, breeding chiefly far northward; in North Ameri a migrating south in winter as far as Panama and Cuba.

SP. CHAR. *Adult male in fall, winter, and spring:* Head and upper half of the neck hair-brown or grayish umber, the upper surface darker, often inclining to deep sepia-brown; all the feathers (usually) appreciably darker centrally, producing an indistinctly and minutely speckled appearance; on each side of the occiput the brown has a metallic gloss of dull green, showing a faint purple reflection in some lights. Nape opaque intense black, separated from the brown of the upper neck by an upward extension of the white of the lower neck nearly to the occiput. Stripe on each side of the nape (as described above), lower half of the neck frontally and laterally, breast, and abdomen immaculate white. Lower hind neck, with entire dorsal region and lateral lower parts, finely waved with transverse, rather zigzag, lines of white and black of nearly equal width. Longer scapulars opaque velvety black centrally, edged broadly with grayish white; outer scapulars with exposed ends of their outer webs entirely velvety black. Tertials silvery gray, with a median stripe of intense velvety black. Speculum dull green, varying to dull bronzy purple, with a subterminial bar of velvety black and a tip of white. Wing-coverts uniform brownish gray, the last row broadly tipped with cinnamon-rufous. Primaries dull slaty. Upper tail-coverts with outer webs black, the inner webs grayish white; lower tail-coverts deep opaque velvety black, the exterior row with their outer webs white; postfemoral space delicate cream-color. Tail-feathers dark ashy edged with white, the elon-

* For many of the local names of game and water birds I am indebted to Mr. Gurdon Trumbull's *Names and Portraits of Birds*, (Harper Brothers, New York,) a most u eful work, which should be in the hands of every sportsman.

gated middle pair uniform deep black. Bill plumbeous-blue, the ungui, base, and stripe along culmen, black; iris brown; feet dusky. *Adult male in summer:* "Head, neck, and under parts generally as in the adult female, except that the abdomen is duller in color and less marked; back dull dark brown, each feather having one or two irregular dirty-white bars, and some being irregularly vermiculated with that color; rump washed with gray; tail similar in color to that of the bird last described [*i.e.* adult male in winter], but the two central feathers are but slightly elongated; wings also as in the last described stage of plumage, but the elongated secondaries and scapulars are shorter and blunter, and in color dark gray, black along the centre, some of the latter being marked like the back; flanks grayish brown, every feather having broad yellowish-white bars; under tail-coverts as in the female." (SHARPE & DRESSER.) *Adult female:* Above slate-dusky, variegated transversely with yellowish white or pale ochraceous; these markings sometimes irregularly bar-like, but oftener of U-shaped form, one on the edge, and one in the middle portion of each feather. Wing much as in the male, but metallic color of the speculum duller, the ochraceous bar anterior to it paler, and the white terminal bar tinged with buff; wing-coverts narrowly tipped with whitish. Upper tail-coverts broadly edged with whitish, and more or less marked with irregular, usually V-shaped, lines of the same. Tail-feathers dusky, edged with whitish, and with more or less distinct indications of distant bars of the same. Head and neck dingy whitish, tinged with brown on the superior surface, which is heavily streaked with blackish, the other portions more finely and thinly streaked, the throat being nearly immaculate. Rest of the lower parts dingy white, the feathers more grayish beneath the surface; crissum and flanks streaked with dusky, but abdomen, etc., usually immaculate. *Young male:* Similar to the female, but markings on upper parts more bar-like, and lower parts sometimes almost wholly streaked. *Young female* (No. 54,633 Kadiak, Alaska, Aug. 1, 1868; F. BISCHOFF): Speculum pale broccoli-brown, marbled toward base of feathers with dusky. All the feathers of the upper parts conspicuously and broadly bordered with buffy white, lower parts everywhere densely streaked with dusky. *Downy young:* Above grayish brown, with a white stripe along each side of the back, a white space on the wing, and a white superciliary stripe. Beneath grayish white, with a very faint yellowish tinge; a brown stripe behind the eye, and an indistinct space of the same over the ears.

Male, total length about 26.00–28.00 inches; extent, 36.00; wing, 10.25–11.10; tail 7.25–9.50; culmen 1.85–2.15; width of bill, .70–.80; tarsus, 1.55–1.85; middle toe, 1.70–2.10. *Female*, wing, 9.60–10.10; tail, 4.50–5.00; culmen 1.80–2.10; width of bill .65–.75; tarsus, 1.65; middle toe, 1.80.

The range of individual variation of the colors in this species is very slight, consisting of differences that are scarcely worthy of mention. European specimens, however, differ very appreciably from North American ones in narrower speculum, but not in other respects. Two males measure as follows: Wing, 10.30–11.00 inches: tail (elongated middle feathers), 8 50; culmen, 1.85–1.95; width of bill, .70–.75; tarsus, 1.40–1.60; middle toe, 1,85–1.90.[1]

"Breeds in Manitoba and the northern tier of States, and, like the other river ducks, is common during the winter in the Gulf States, and occasionally as far north as Illinois, but it also goes much farther south. It is one of the earliest ducks to migrate and was one of the most abundant of those which so

[1] Sharpe & Dresser ("*History of the Birds of Europe*," Part xix) give the dimensions of the European Pin-tail as follows: "Total length 2 feet, culmen 2.2 inches; wing 11.2 inches; tail, 7.5; tarsus, 1.6."

strenuously endeavored to work northward during February, in 1884. . . . . A few ducks of this species spent most of the winter of 1884-'85 at Shawneetown, Ill. The only record of their wintering farther north than Shawneetown was received from Mr. W. B. Hull, of Milwaukee, Wis. Mr. Hull writes:

"For about a week the whole bay was frozen over, with ice from 12 to 14 inches thick. During this time the pot-hunters butchered numbers of Pintail Ducks. The ducks were half starved, and would allow a man to approach within 20 feet of them. Ice-men were cutting ice close to the shore, and ducks came right among them to get to the open water. A friend who was on the ship Oneida during her twenty-five days in the ice, said that the ducks (Pintails mostly, but a few 'northern' ducks, he did not recognize) were 'frozen in.' When walking on the ice near the boat, he saw hundreds of ducks in a solid casing of ice. In the winter of 1873-'74, they were killed in the same way." (COOKE.*)

"The following valuable notes relative to the summer distribution and breeding of this duck are abridged from the papers of my late esteemed friend, Robert Kennicott: In America the summer home of the Pintail is within the Arctic regions, farther to the northward than that of any other of our fresh-water ducks, comparatively few breeding south of Great Slave Lake. In their spring migrations to the northward they move in immense flocks, which only disperse upon their arrival at their breeding-grounds. A few reach that lake about May 1; but the main body arrive about a week or so later, and mostly pass directly on across the lake to the northward. On the Yukon the first specimens were seen in the latter part of April; and before the 10th of May they had arrived in immense flocks, which remained some time together in that vicinity before passing farther north or separating to breed. At this time the birds were fat, and their flesh delicious, much superior to that of any other duck, except the Widegon. At the Yukon the Pintails are the latest in nesting of any of the fresh-water ducks, and generally hatch a week or two after the Mallard. He found them breeding in the same grounds, and at about the same time, with *Fulix affinis*, though they do not associate with that

* *Bird Migration in the Mississippi Valley*, pp. 68,69.

species. He always found their nest in low but dry ground, under the shelter of trees or bushes, though never among thick large trees, and not more than two or three rods from water. They never build on hummocks in the water, nor on high land, but always just upon the edge of a marsh or lake.

"The nest is usually placed at the foot of a willow, among grass, rather than leaves or moss, and is extremely simple, being composed of merely a few bits of broken dry grass and sticks, but well lined with down.

"In observing the breeding habits of these ducks, Mr. Kennicott was struck with the remarkable persistence in the individuals of each species in always choosing precisely similar localities for their nests, so far as possible; and he was therefore somewhat particular in describing minutely the peculiar nesting-place chosen by each.

"The eggs are from seven to nine in number, and rather small in size. At the Yukon the young are mostly hatched in the early part of July. The old males moult before this time, and the females somewhat later, During the summer and fall, as in the spring, the flesh of this species is superior to that of any other duck in that region. It leaves the Yukon and Mackenzie River region a little later than the other fresh-water ducks, except the Widgeon. It does not collect in such large flocks in autumn as on its arrival in the spring. (Dr. T. M. BREWER, in *Water Birds of North America.*)

GENUS **SPATULA** BOIE.

Spatula BOIE, Isis, 1822, 564. Type, *Anas clypeata* LINN.
Rhynchaspis "LEACH," STEPHENS, Shaw's Gen. Zoöl. xii, pt. ii, 1824, 114. Same type.

GEN. CHAR. Bill longer than the head, much expanded, or almost spatulate, terminally, where about twice as wide as at the compressed base; maxillary lamellæ very thin, lengthened, almost completely exposed posteriorly, where resembling the teeth of a fine comb. Tail short, the feathers acute.

Of this very curious and well-marked genus, in which, however, there is little that is peculiar except in the form of the bill, about five species are known; one occurring throughout the northern hemisphere, the others peculiar to South America, South Africa, Australia, and New Zealand. In the two American species and

that from Australia there is a very close resemblance in the coloration of the wing to certain species of *Querquedula* (e. g. *discors* and *cyanoptera*); while in the Australian species (*S. rhynchotis*) this curious analogy is carried still farther, the coloration of the head, including the white crescentic bar across the lores, being almost exactly as in *Q. discors*.

Spatula clypeata (Linn.)

SHOVELLER.

Popular synonyms. Spoon-bill; Shovel-bill; Broady; Butter Duck; Cow-frog (North Carolina); Mud-shoveller (Florida).

Anas clypeata Linn. S. N. ed. 10, i, 1758, 124; ed. 12, i, 1766, 200.—Wils. Am. Orn. viii, 1814, 65, pl. 67, fig, 7.—Sw. & Rich. F. B.-A. ii, 1831, 439.—Nutt. Man. ii, 1834, 375.—Aud. Orn. Biog. iv, 1838, 241, pl. 327; Synop. 1839, 283; B. Am. vi, 1843, 293, pl. 394.

Spatula clypeata Boie, Isis, 1822, 564.—Baird, B. N. Am. 1858, 781; Cat. N. Am. B. 1859, No. 583.—Coues, Key, 1872, 288; Check List, 1873, No. 498; 2d ed. 1881, No. 718; B. N. W. 1874, 570.—Hensh. Zoöl. Wheeler's Exp. 1875, 478.—Ridgw. Orn. 40th Par. 1877, 624; Nom. N. Am. B. 1881, No. 608; Man. N. Am. B. 1887, 97.—B. B. & R. Water B. N. Am. i, 1884, 526.—A. O. U. Check List, 1886, No. 142.

Anas rubens Gmel. S. N. i, ii, 1788, 419.

? *Anas mexicana* Lath. Ind. Orn. ii, 1790, 857.

Clypeata macrorhynchos, platyrhynchos, pomarina, brachyrhynchos, Brehm, Vög. Deutschl. 876, 877, 878, 879.

Hab. The whole of the Northern Hemisphere; in North America, breeding from Texas to Alaska; wintering as far south as Guatemala, Cuba, and Jamaica; Australia.

Sp. Char. *Adult male, in winter:* Head and neck dark metallic bluish green, much duller than in *Anas boschas*; chest and outer scapulars white, the former sometimes spotted with dusky; entire abdomen and sides uniform chestnut; crissum dark metallic bluish green, bounded anteriorly by a band of finely waved grayish white. Back and inner scapulars dusky, the feathers sometimes bordered with white; longer lanceolate scapulars marked with a mesial lanceolate stripe of white; wing-coverts light grayish blue, the last row tipped with white, forming a narrow band across the wing; speculum bright metallic green, very narrowly tipped with white; tertials dusky black, with faint green reflections, and marked toward the end with an indistinct mesial stripe of grayish white; primaries and their coverts dull slate-gray; rump and upper tail-coverts black, the former with faint, the latter with bright, green reflections; rectrices chiefly grayish white, the middle ones dark gray, edged with white. Bill deep black; iris bright yellow; legs and feet beautiful orange-red. *Adult female:* Wings as in the male, but colors rather duller. Other parts grayish brown above, varied with brownish white; brownish white below, the head and neck streaked, the breast, abdomen, etc., spotted with grayish brown. Bill brown, mandible orange; iris yellow and feet orange-red, as in the male. *Young male:* Similar to the adult female, but lower parts (always?) tinged with chestnut. *Young female:* Similar to the adult, but wing-coverts dull slate, with little, if any, blue tinge, the speculum dusky, with a very faint green reflection, and rather broadly tipped with brownish white. *Downy young:* Above, grayish brown, with a brownish white spot on each side of the back, and a corresponding pair on the rump; pileum darker than the back and nape; head (except pileum) and entire lower parts pale grayish fulvous, or dirty grayish buffy white, shaded with brownish gray across the chest; a narrow stripe of dark brown from the upper angle of the base of the bill to the eye, and continued posteriorly about half way to the occiput;

another similar stripe beneath the last, beginning a little behind the posterior border of the eye, and extending farther back than the one above it.

Total length, about 20.00 inches; extent, 31.00 to 33.00 inches; wing, 9.00–10.00; culmen, 2.60–2.90; width of bill at end, 1.10–1.20, at base, .60; tarsus, 1.40–1.50; middle toe, 1.65–1.75. Specimens vary considerably in colors: usually the white of the chest and scapulars is nearly or quite immaculate; but not infrequently these portions are more or less spotted with dusky. The chestnut of the abdomen is sometimes immaculate, sometimes barred with dusky.

"Winters from southern Illinois southward; breeds abundantly in the Northern States and Manitoba, and sparingly in Texas, northern Illinois, and Kansas. Breeds in great numbers at Heron Lake, Minn. Its time of migration is one or two days behind that of the Gadwall." (COOKE.)

The Shoveller has probably the most extensive range of any species of the duck tribe, being found throughout the northern hemisphere as well as in Australia. Its habits presenting nothing particularly distinctive, it is unnecessary to describe them particularly here. It breeds in the northern part of the State, or at least did so formerly. Mr. B. F. Goss found a nest near Pewaukee, Wisconsin, on a small island in Horicon Lake, some five feet above the water. "The Mallards were all around within a few feet. As the ground was quite bare, with merely a few rocks scattered about, the birds could be seen from the water sitting on their nests. On his first approach he noticed the Spoon-bill rising with the rest; and after examining the nests, selected one that was somewhat smaller than the others, with smaller eggs, and lined with feathers of a little different shade, as the Spoon-bill's nest. He set a small stake to mark the place, and retired until the birds returned to their eggs, when he again approached, watching carefully the indicated spot, and had the good fortune to kill the bird as she rose. The nest contained ten eggs, quite fresh, a little smaller than the Mallard's, from which they differed somewhat in color and in shape." (*Water Birds of North America.*)

GENUS **AIX** BOIE.

Aix BOIE, Isis, 1828, 329. Type, *Anas sponsa* LINN.
Dendronessa SWAINS. F. B.-A. ii, 1831, 446. Type *Anas galericulata* LINN.
Lampronessa WAGL. Isis, 1832, 282. Type, *Anas sponsa* LINN.
Cosmonessa REICH. Syst. Av. 1849, pl. 9. Type, *Anas sponsa* LINN. (*Nec Cosmonetta* KAUP, 1829.)

GEN. CHAR. Bill small, much shorter than the head, all the lateral outlines gradually converging toward the end, the nail very large, broad, and prominent, forming the tip of the bill; lamellæ completely hidden. Adult male with the head crested, the colors rich and varied, and the markings elegant; tertials exceedingly broad, truncate.

The above characters are framed so as to include the Chinese Mandarin Duck (*Aix galericulata*),[1] the only other known species of the genus. This duck is quite similar to our Wood Duck in style of coloration and in general appearance, but differs in many external characters, and if not generically distinct should at least be considered the type of a different subgenus.

Aix sponsa (Linn.)

WOOD DUCK.

Popular synonyms. Summer Duck; Bridal Duck; Wood Widgeon (Connecticut); Acorn Duck; Tree Duck.

Anas sponsa LINN. S. N. ed. 10, i, 1758, 128; ed. 12, i, 1766, 207.—WILS. Am. Orn. viii, 1814, 97, pl. 70, fig. 3.—NUTT. Man. ii, 1834, 394.—AUD. Orn. Biog. iii, 1835, 52; v, 1839, 618, pl. 206; Synop. 1839, 280; B. Am. vi, 1843, 271, pl. 391.

Aix sponsa BONAP. Comp. List, 1838, 57.—BAIRD, B. N. Am. 1858, 785; Cat. N. Am. B. 1859, No. 587.—COUES, Key, 1872, 288; Check List, 1873, No. 499; 2d ed. 1882, No. 719; B. N. W. 1874, 571.—RIDGW. Orn. 40th Par. 1877, 624; Nom. N. Am. B. 1881, No. 613; Man. N. Am. B. 1887, 99.—A. O. U. Check List, 1886, No. 144.—B. B. & R. Water B. N. Am. ii, 1884, 11.

Dendronessa sponsa SW. & RICH. F. B.-A. ii, 1831, 446.

HAB. Whole of temperate North America, north to the Fur Countries; breeding throughout its range. Cuba. Accidental in Europe.

SP. CHAR. *Adult male:* Chin, throat, and foreneck pure white, sending off laterally two branches,—the first across the cheeks, back of, and nearly to, the posterior angle of the eye, the second across the lower part of the neck, almost to the nape; both bars tapering toward the end, and somewhat curved or falcate in shape; a narrow white line begins at the point of the maxillary angle, and is continued backward on each side of the crown, widening considerably on the side of the crest; a second white line commences about half an inch behind the eye, and nearly the same distance above the end of the white cheek-bar, and follows the lower edge of the crest, where considerably wider posteriorly; remainder of the head silky metallic green, violet, and purple, as follows: cheeks and space behind the white cheek-bar soft violaceous-black, in the latter region extending up to the lower white stripe, but in the anterior area bounded above and anteriorly by dark metallic green; the orbital region and anterior half of the crest between the white lines metallic reddish-purple; forehead, crown, and posterior portion of the crest metallic green; terminal portion of the crest, above, laterally, and beneath, dark metallic violet. Chest rich purplish chestnut, with a metallic-purple gloss laterally, the front and lower part marked with deltoid spots of white, growing larger toward the breast; breast and abdomen immaculate white; sides of the breast with a broad white transverse bar, and a wide black one immediately behind it; sides and flanks pale fulvous-buff delicately waved with black, each of the broad feathers forming the upper border beautifully marked with two black crescentic bars, inclosing a white one; crissum dull black, fading gradually into dull rusty-fulvous on the anal region. Back, lesser wing-coverts, and rump dark slaty brownish, very faintly glossed with bronze, the wing-coverts more slaty, the rump much darker, and gradually deepening into black toward the upper tail-coverts, which, with the tail, are deep black, the latter with bronze-green reflections in certain lights; a somewhat ovate patch (pointed posteriorly) of rich dark metallic maroon-purple on each side of the rump, immediately behind the flanks;

[1] *Aix galericulata* LINN. S. N. ed. 10, i, 1758, 128.—*Aix galericulata* BOIE, Isis, 1828, 329.

just behind this, the two or three elongated lateral upper tail-coverts are marked with a central stripe of deep fulvous, falling gracefully over the sides of the crissum. Tertials and posterior scapulars intense black, with rich velvety reflections of blue, green, and purple (chiefly the first), in certain lights; the longest tertial tipped with a wide bar of white, the next black to the end, the third much shorter, much narrower than the rest, pointed, and of a dull greenish-bronze color;[1] middle and greater wing-coverts steel-blue, narrowly tipped with black; secondaries ("speculum") purplish steel-blue, narrowly tipped with white, and with a narrow sub-terminal black bar; primary-coverts slate-color; primaries with the exposed ends of the inner webs steel-blue, the ends of the outer webs grayish or glaucous-white, becoming slate-color basally; lining of the wing spotted with slate-color and white. Sagittate longitudinal space on the culmen, and terminal "nail" of the bill deep polished black; an oblong space of milk-white from nostril to the 'nail;" a line or border of gamboge-yellow following the basal outline of the bill; rest of bill dark purplish red, deepening into scarlet just behind the nostril. Iris bright orange-red; eyelids deep vermilion; legs and feet dull chrome-yellow, the webs and joints dusky.[2] Total length, about 19.00 inches; extent, 29.00; wing, 9.00–9.50; culmen, 1.40; tarsus, 1.40; middle toe, 1.70. *Adult female:* Feathers bordering the base of the bill all round, a space on side of the head surrounding the eyes and extending backward in a point toward the occiput, chin, and whole throat white; remainder of the head plumbeous or slate-gray, the crown and slight occipital crest glossed with metallic green; chest brownish, the feathers marked centrally with fulvous-buff, those toward the breast tipped with white; remaining lower parts white, the crissum freckled with dusky grayish, the sides and flanks raw-umber brown, spotted with brownish white; back, rump, and upper tail-coverts hair-brown, glossed, in certain lights, with bronze and reddish purple; tail brightly glossed with greenish bronze; scapulars and tertials olive-brown, richly glossed with reddish purple and bronze; wings as in the adult male, but secondaries more widely tipped with white, and the four upper greater-coverts rich metallic reddish purple, more bluish in the centre, bronzy toward the edge and base, and narrowly tipped with velvety black. Bill dark plumbeous, the nail and longitudinal space on the culmen black; eyelids chrome-yellow; iris raw-sienna; legs and feet yellowish brown.[3] Total length, about 17.75 inches; extent, 28.00; wing, 8.50; culmen, 1 30; tarsus, 1.35; middle toe, 1.60. *Downy young:* Above, deep hair-brown, darker, or clove-brown, on the pileum and tail; a dingy whitish bar along the posterior border of the arm-wing, and a roundish spot of the same on each side of the rump. Lores, superciliary stripe extending back nearly to the occiput, with lateral and under parts of the head generally, bright sulphury-buff, crossed by a wide stripe of blackish brown extending from the occiput forward to the eye; remaining lower parts dingy white, the sides brownish, this crossed on the flanks by an indistinct whitish bar.[4]

[1] There is in this species a very strange and probably altogether peculiar arrangement of the tertials, longer scapulars, and inner secondaries, both as to form and colors. The exposed surface of the first appears continuously intense black, as described above; but upon lifting the feathers it is seen that between each two there is a concealed one of different form and color—narrow and pointed, instead of broad and nearly truncated, and dull bronzy, instead of deep black. Of these bronzy feathers, only the la-t (or the longest scapular) has its tip exposed; the innermost secondary is the longest, and is entirely intense black to the tip; the next is very much (nearly an inch) shorter, entirely concealed, and also wholly black; the third is little, if any, shorter than the first, but is marked at the end by a broad bar of pure white; the fourth is a little shorter, without any white at the tip, and the outer web chiefly reddish purple; this, like the third, has the outer web much widened terminally.

[2] Fresh colors of a specimen killed October 19, at Mount Carmel, Ill.

[3] Fresh colors of a specimen killed October 14, at Mount Carmel, Ill.

[4] Described from No. 84,725, obtained at Mount Carmel, Ill., July 17, 1871.

The exquisitely beautiful Wood Duck, or Summer Duck, is very generally distributed throughout the timbered portions of Illinois, its favorite haunts being wooded bottom-lands, where it frequents the streams and ponds, and nests in hollows of the largest trees. It usually comes from the south very early in the spring (February or March, according to the latitude and the character of the season), departing again in September or October. Sometimes, however, it may be found during mild winters in the southern parts of the state.

"Wilson narrates that on the 18th of May he visited a tree containing a nest of a Summer Duck, on the banks of Tuckahoe River, New Jersey. This tree stood on a declivity twenty yards from the water; and in its hollow and broken top, about six feet down, on the soft decayed wood, were thirteen eggs covered with down from the mother's breast. The eggs were of an exact oval shape, the surface finely polished and fine grained, of a yellowish color, resembling old polished ivory, and measured 2.12 by 1.50 inches. This tree had been occupied by the same pair, during the breeding-time, for four successive years. Wilson's informant, who lived within twenty yards of the tree, had seen the female, the spring preceding, carry down thirteen young, one by one in less than ten minutes. She caught them in her bill by the wing or the back of the neck, and landed them safely at the foot of the tree, and finally led them to the water. In evidence of the unwillingness of this species to abandon its breeding-place, Wilson mentions that under this tree a large sloop lay on the stocks, its deck not more than ten feet distant from the nest. Notwithstanding the presence and noise of the workmen, the Ducks would not abandon their old home, but continued to pass out and in, as if no person were near. While the female was laying, and afterward, when she was setting, the male usually perched on an adjoining limb, and kept watch. The common note of the drake was *peet-peet*, and when, standing sentinel, he apprehended danger, he made a noise not unlike the crowing of a young cock, *oe-eek*.

"The Wood Duck, has been repeatedly tamed and partially domesticated, and of this statement there are many well-attested cases on record. My own attempts to effect this, however, have been unsuccessful, the old birds remaining wild, and

not breeding. Wilson was informed of an instance where a resident near Gunpowder Creek had a yard swarming with Wood Ducks which were completely domesticated. Audubon also gives an interesting account of his attempts to tame and domesticate this duck, in which he so far succeeded that the birds bred within his grounds, in boxes. The wild ducklings when taken were put in the bottom of empty flour-barrels; but he soon found that they could raise themselves from the bottom to the brim by moving a few inches at a time up the side, lifting foot after foot, by means of their diminutive hooked claws, when they would tumble over, and run in every direction. They fed freely on corn-meal soaked in water, and, as they grew, caught flies with great expertness." (*Water Birds of North America.*)

GENUS **AYTHYA** BOIE.

Aythya BOIE, Isis, 1822, 564. Type, by elimination, *Anas ferina* LINN.

GEN. CHAR. Hind toe with a broad membranous lobe, or "flap": feathering on lores or forehead not reaching beyond posterior border of nostril; graduation of tail less than length of bill from nostril; loral feathering with a decidedly convex anterior outline; width of nail less than one third the width of the bill across middle portion. *Adult males* with the head and part of the neck uniform chestnut or black, the lower neck uniform black (except in a few exotic species); back and scapulars waved with white and black; speculum bluish gray, or white tipped with black; lower parts white. *Adult females* with head, neck, chest, and upper parts plain brownish, the head paler, or whitish, next the bill; speculum as in the male.

The American species of this genus are ranged under three subgenera, as follows:

A. Culmen longer than inner toe, with claw; bill not wider near end than at base; head and neck reddish in adult males.

1. **Aythya.** Bill much shorter than middle toe, without claw, its greatest width nearly half the length of the culmen, the end moderately depressed, and the nail decidedly hooked.
2. **Aristonetta.** Culmen as long as middle toe, without claw, its greatest width not more than one third the length of the culmen; the end much flattened, and nail very slightly hooked.

B. Culmen as long as outer toe, with claw, bill wider at end than at base; head and neck black in adult males.

3. **Fuligula.**

Subgenus **Aythya** Boie.

Aythya Boie, Isis, 1822, 564. Type, by elimination, *Anas ferina* Linn.

Subgen. Char. Culmen longer than inner toe, with claw; bill not wider near end than at base, much shorter than middle toe without claw, its greatest width nearly half the length of the culmen, the end moderately depressed, and the nail decidedly hooked. *Adult males* with the head and upper neck reddish.

Only one American species, the common Red-head (*A. americana*), belongs to this subgenus. It is a near relative of, but is decidedly distinct from, the Pochard, of Europe, *A. ferina* (Linn.).

Aythya americana (Eyt.)

RED-HEAD.

Popular synonyms. Red-headed Duck; American Pochard; Red-headed Broad-bill: Red-headed Raft Duck.

Anas ferina Wils. Am. Orn. viii, 1814, 110, pl. 70 fig. 6 (not Linn.).

Fuligula ferina Bonap. Synop. 1828, 392.—Sw. & Rich, F. B.-A. ii, 1831, 452.—Nutt. Man. ii, 1834, 434.—Aud. Orn. Biog. iv, 1838, 198, pl. 322; Synop. 1839, 237; B. Am. vi, 1843, 311, pl. 396.

Fuligula americana Eyton, Mon. Anat. 1838, 155.

Aythya ferina δ *americana* Bonap. Compt. Rend. xliii, Sept. 1856, 651.

Aythya americana Baird, B. N. Am. 1858, 793; Cat. N. Am. B. 1859, No. 591.—Ridgw. Orn. 40th Par. 1877, 624; Man. N. Am. B. 1887, 101.—A. O. U. Check List, 1886, No. 146.

Æthyia americana Scl. & Salv. Nom. Neotr. 1873.—Ridgw. Nom. B. 1881, No. 618.—B. B. & R. Water B. N. Am. ii, 1884, 36.

Aythya ferina, var. *americana* Allen, Bull. M. C. Z. iii, 1872, 183.

Fuligula ferina, var. *americana* Coues, Key, 1872, 289; Check List, 1873, No. 503; B. N. W. 1874, 575.—Hensh. Zoöl Wheeler's Exp. 1875, 480.

Fuligula ferina americana Coues, Check List, 2d ed. 1882, No. 723.

Aythya erythrocephala Bonap. Comp. List, 1838, 58.

Hab. The whole of North America, breeding from central California, Minnesota, northern Iowa, Wisconsin, Michigan, and Maine, to the Fur Countries; Bahamas, Central America, etc., in winter.

Sp. Char. Bill much shorter than the middle toe (without claw), broad, the end moderately depressed, and with the nail decidedly decurved, the culmen about two and a half times the greatest width of the maxilla, and decidedly concave. *Adult male:* Head and upper half, or more, of the neck rich reddish chestnut, the latter glossed with reddish purple; lower part of the neck, chest, anterior part of the back, lower part of the rump, upper tail-coverts, and crissum, black; back, scapulars, sides, and flanks, densely vermiculated with white and dusky in about equal proportion; anal region similarly, but more faintly, marked; entire abdomen immaculate white; wing-coverts deep plumbeous-gray, faintly and minutely sprinkled with white; secondaries ("speculum") pale bluish gray, the upper feathers edged with black, the others narrowly tipped with white; primaries dusky, the inner quills slate-gray, except at ends; tail dusky. Bill pale blue, the end black; iris bright yellow; feet light gray. *Adult female:* Head and neck grayish brown, darkest above; the anterior part of the head lighter, almost white on the chin and upper part of the throat; chest, sides, and flanks dull grayish brown, the feathers tipped with fulvous; wings as in the male, but the coverts plain slate-color; back and scapulars grayish brown, the feathers with pale

tips; rump, upper tail-coverts, and tail dusky grayish brown; anal region paler; lower tail-coverts whitish. Bill grayish, the end black; iris yellow; feet grayish. *Downy young:* Above, ochreous olive-brown, indistinctly relieved by an olive-yellow spot back of each wing, one on the hind border of each arm-wing, and one on each side of the rump; entire head and neck (except pileum and nape), with whole lower parts deep, buff-yellow, paler and less yellow on abdomen and anal region. No dark markings whatever on side of head. Bill and feet light colored (brownish in dried skin).

Total length, about 20.00–21.00 inches; extent, 33.00; wing, about 8.50; culmen, 2.05–2.25; greatest width of bill, .75–.85; tarsus, 1.60–1.65; middle toe, 2.30–2.40.

The Red-heads arrive in Illinois from the south in March, and continue northward to their breeding grounds, which extend from Wisconsin, Michigan, and others of the "northern tier" of States, to the Fur Countries. They return in October.

Where it can obtain the same food, the Red-head is quite as good eating as the celebrated Canvas-back (*A. vallisneria*), though it never commands so high a price in the markets. In short, it is more the costly character of the latter, together with its high reputation, than any real superiority of its flesh, that creates the greater demand for it.

The Red-head was found nesting on the St. Clair flats, Michigan, by Mr. W. H. Collins, who thus describes some of its breeding habits:[1]

"The past season I had the good fortune to find two nests of the Red-head Duck (*Aythya americana*), containing respectively seven and eight eggs. The first was placed on some drifted rushes on a sunken log, and was composed of flags and rushes evidently taken from the pile of drift upon the log, as they were short pieces, so short, in fact, that the nest when lifted with the hands fell in pieces. The nest was about four inches deep, and lined with down from the female. This nest contained seven fresh eggs of a creamy color, and [*sic*] varied in measurements from 2.30×1.75 to 2.22×1.66 inches, and were of a uniform oval shape, very little smaller at one end. The other nest was built similar to a Coot's nest, that is, of flags and grass interwoven at the base of a bunch of flags, growing in water three or four feet deep. It was built in such a way that the nest would rise and fall with the water. This nest also contained down and eight fresh eggs, uniform in size, shape, and color with the others. The birds, male and female, were flying around, and often came quite close to me. The cry of the

[1] Bulletin of the Nuttall Ornithological Club, v, 1880, pp. 61–62.

female resembled the cry of the Mallard so nearly that, had I heard and not seen the bird, I should have supposed it to be the Mallard."

Subgenus **Aristonetta** Baird.

Aristonetta Baird, B. N. Am. 1858, 793, in text. Type, *Anas vallisneria* Wils.

Subgen. Char. Culmen nearly or quite as long as middle toe, without claw, and equal to three times the greatest width of the bill; end of bill much flattened, and nail very slightly hooked. Otherwise like *Aythya*, the coloration, in particular, very similar.

This subgenus contains only one species, the celebrated Canvas-back of wide range but local fame.

Aythya vallisneria (Wils.)

CANVAS-BACK.

Popular synonyms. Canvas-back Duck; White-back; Canard Cheval (New Orleans); Bull-neck; Red-headed Bull-neck.

Anas vallisneria Wils. Am. Orn. viii, 1814, 103, pl. 7, fig. 3.

Fuligula vallisneria Stephens, Shaw's Gen. Zoöl. xii, pt. ii, 1824, 196.—Sw. & Rich. F. B.-A. ii, 1831, 451.—Nutt. Man. ii, 1834, 430.—Aud. Orn. Biog. iv, 1838, 1, pl. 301; Synop. 1839, 285; B. Am. vi, 1843, 299, pl. 395.—Coues, Key, 1872, 290; Check List, 1873, No. 504; ed. 2, 1882, No. 724; B. N. W. 1874, 575.

Aythya vallisneria Boie, Isis, 1826, 980.—Baird, B. N. Am. 1858, 794; Cat. N. Am. B. 1859, No. 592.—A. O. U. Check List, 1886, No. 147.—Ridgw. Orn. 40th Par. 1877, 625; Man. N. Am. B. 1887, 102.

Æthyia vallisneria Scl. & Salv. Nom. Neotr. 1873.—Ridgw. Nom. N. Am. B. 1881, No. 617.—B. B. & R. Water B. N. Am. ii, 1884. 30.

Aristonetta vallisneria Baird, B. N. Am. 1858, 793 (in text).

Hab. Nearly the whole of North America, breeding from the northwestern States northward to Alaska; south in winter to Guatemala.

Sp. Char. Bill long and narrow, the end much depressed, with the nail scarcely decurved, the base high, with the culmen gradually sloping and scarcely concave; culmen nearly as long as the middle toe (without claw), and about three times the greatest width of the maxilla. *Adult male:* Head and neck chestnut-rufous, the former brownish dusky (sometimes quite blackish) anteriorly and on top; chest and anterior part of the back, lower part of rump, upper tail-coverts, and posterior part of crissum black; back, scapulars, flanks, sides, and anal region white, finely and delicately vermiculated with dusky; breast and abdomen immaculate white. Wing-coverts deep ash-gray, finely sprinkled with white; secondaries ("speculum") lighter, more bluish, gray, the upper feathers edged with black; tertials like the longer scapulars; primaries slate-color, the inner quills more ashy, except at ends, where dusky; tail dusky. Bill entirely greenish black; iris carmine-red; feet bluish gray. *Adult female:* Head, neck, chest, and anterior part of back raw-umber brown, a postocular space and the foreneck whitish, the chin, throat, and cheeks tinged with fulvous; wings as in the male, but coverts almost or quite uniform gray; back, scapulars, sides, and flanks with only the exposed ends of the feathers vermiculated with white and dusky, the remainder being grayish brown. Bill greenish black; iris brownish red; feet grayish.

Total length, about 20.00 to 22.00 inches; extent, 30.00 to 33.00; wing, 8.75–9.25; culmen, 2.10–2.50; greatest width of bill, .75–.80; tarsus, 1.70; middle toe, 2.60–2.65.

Many persons experience difficulty in distinguishing the Canvas-back from the Red-head. An examination of the bill alone, however, is sufficient to distinguish them with absolute certainty, this member being radically distinct in shape in the two birds, as shown by the diagnostic character of the subgenera which they respectively represent, on page 156. The plumage of the adult males, while somewhat similar, will be seen on comparison to be really quite different. The Canvas-back has the front part of the head dusky, or blackish, the rest of the head, with the whole neck, being rusty chestnut. The Red-head, on the other hand, has the *whole* head, and only the upper half of the neck, a much brighter reddish chestnut, with purple gloss. The back and scapulars are much whiter in the Canvas-back, and this species has a wholly blackish bill and red eyes, while the Red-head has a leaden-blue, black-tipped bill and yellow eyes.

The famous Canvas-back, so higly prized by eastern epicures, is an abundant migrant in Illinois, as indeed it is entirely across the continent. It breeds from Minnesota northward, and winters in the Southern States, chiefly along the South Atlantic and Gulf coasts, though it has been known to occur in mild winters in the southern part of Illinois.

Whatever the cause may be, the opinion held as to the edible qualities of this species varies greatly in different parts of the country. Nowhere has it so high a reputation as in the vicinity of Chesapeake Bay, where the alleged superior quality of its flesh is ascribed to the circumstance that it there feeds chiefly on the "water celery" (*Vallisneria spiralis*). That this supposed explanation is wholly fallacious, however, is evident from the fact that the same plant grows in far greater abundance in the upper Mississippi Valley, where, also, the Canvas-back feeds on it. Hence it is highly probable that fashion and imagination, or perhaps a superior style of cooking and serving, play a very important part in the case.

In California, however, where the *Vallisneria* does not grow, the Canvas-back is considered a very inferior bird for the table.

"This species," says Dr. Brewer, "in and around Chesapeake Bay, has long been regarded as preëminent for the richness and delicacy of the flavor of its flesh; and it is claimed by many that no wild-fowl in any part of the world can vie in this respect with the Canvas-back of these waters. It has been hunted on the Chesapeake and its tributaries with unrelenting greed, until its numbers have been greatly reduced, and many have been driven to more southern regions. This bird always commands a ready sale; and even when sent to the market by thousands, always brings a high price. While a few Canvas-backs are met with in the waters of the Hudson, the Delaware, and in other eastern rivers, by far the larger portion of them resort to Chesapeake Bay and adjacent waters. Of late years, its numbers have greatly increased along the short rivers of North Carolina. It is also found in abundance on the western lakes, and is particularly numerous on Lake Koskonong, in southern Wisconsin. In March I have seen the markets of Chicago well supplied with this duck; and although they are in no wise superior to the Mallard, the Pin-tail, the Teals, and other ducks, yet commanding twice the market price of any other species."

Subgenus **FULIGULA** Stephens.

Fuligula Stephens, Gen. Zoöl. xii, pt. ii, 1824, 187. Type, by elimination, *Anas fuligula* Linn.

Fulix Sundev. Kong. Vet. Ak. Hand, 1835, 129. (No type designated, but restricted to the group of which *Anas marila* Linn. is typical, by Professor Baird, in B. N. Am. 1858, 790.)

Marila Bonap. Compt. Rend. xliii. Sept. 1856, 651. (Not of Reichenbach, 1852.)

Nettarion Baird, B. N. Am. 1858, 790 (in text). Type, *Anas marila*, Linn.

Subgen. Char. Bill longer than the tarsus (about as long as the head), very broad and much depressed for the terminal half, the edges nearly parallel or slightly divergent terminally; lower edge of the maxilla strongly convex, concealing all of the mandible except the basal portion. Colors chiefly black and white (the head, neck, and chest black, lower parts white) in the adult male; the black replaced by brownish in the female.

The North American species, all of which occur in Illinois, may be distinguished as follows:

A. Speculum white, tipped with black.

1. **A. marila nearctica.** Flanks usually immaculate white; length 18.00—20, culmen 1.85–2.20; black of head glossed with green.

2. **A. affinis.** Flanks vermiculated or zigzagged with blackish.
Similar to *A. marila nearctica* (including absence of distinct white spaces on six inner quills), but black of head in male glossed with purplish, instead of green; length 15.00–16.50, culmen 1.58–1.90.

B. Speculum bluish gray.

3. **A. collaris.**

Aythya marila nearctica Stejn.

AMERICAN SCAUP DUCK.

Popular synonyms. Big Black-head; Big Blue-bill; Lake Blue-bill; Broad-bill; Bay Broad-bill; Raft Duck (Virginia); Big Fall Duck (Huds. Bay Terr.); Shuffler; Bay Shuffler; Troop Duck; Flock Duck (Maryland); Bull-neck.

Anas marila Wils. Am. Orn. viii, 1814, 84, pl. 69, fig. 3 (may be *F. affinis*).

Fuligula marila Sw. & Rich. F. B.-A. ii, 1831, 453 (part; includes *F. affinis*).—Nutt. Man. ii, 1834, 437 (do.).—Aud. B. Am. vii, 1843, 355, pl. 498 (not of vi, 1843 316, pl. 397, nor of his earlier works, which = *F. affinis*).—Coues, Key, 1872, 289; Check List, 1873, No. 500; ed. 2, 1882, No. 720; B. N. W. 1874, 573.—Hensh. Zoöl. Wheeler's Exp. 1875, 479.

Fulix marila Baird, B. N. Am. 1858, 791; Cat. N. Am. B. 1859, No. 588.—Ridgw. Orn. 40th Par. 1877, 625; Nom. N. Am. B. 1881, No. 614.—B. B. & R. Water B. N. Am. ii, 1884. 18.

Aythya marila nearctica Stejn. Orn. Expl. Kamtsch. 1885, 161.—A. O. U. Check List, 1886, No. 148.—Ridgw. Man. N. Am. B. 1887, 103.

Hab. North America in general, breeding far north; in winter, as far south as Central America and the West Indies.

Sp. Char. *Adult male:* Head, neck, and chest black, the first with a greenish gloss; back and scapulars white, irregularly waved or vermiculated with zigzag lines of black; wing-coverts dusky, finely grizzled with grayish white; secondaries white, tipped, and sometimes narrowly edged, with black; tertials black, with a very faint bottle-green reflection; primary-coverts dusky black; primaries similar, but the inner quills pale grayish on outer webs, except at ends, the gray growing whiter on the shorter feathers; rump, upper tail-coverts, tail, and crissum, dull black. Lower parts between the chest and crissum white, the posterior portion (and sometimes the sides and flanks) zigzagged with dusky. Bill pale blue (or bluish white) in life, the nail black; iris bright yellow; legs and feet pale slate. *Adult female:* Head and neck sepia-brown, the anterior portion of the former, all round the base of the bill, white; chest, anal region, and crissum, pale grayish brown, fading gradually into the white of the breast and abdomen; sides and flanks deeper brown; above, brownish dusky, the back and scapulars but faintly or not at all grizzled with white; wings much as in the male.

Total length, about 18 to 20 inches; extent, 29.50 to 35.00; wing, 8.25–9.00; culmen, 1.85–2.20; width of bill near end, .85–1.05, at base, .70–.90; tarsus, 1.40–1.60; middle toe, 2.25–2.45.

While usually, perhaps, only a transient migrant, the Big Black-head not unfrequently passes the winter in the southern portions of Illinois. Its breeding range extends from Manitoba to the Arctic coast.

Like the Canvas-back, the Black-head is very fond of the roots of the "water celery" (*Vallisneria spiralis*), and, according to Dr. Brewer, is one of the very few ducks that are able to dive and pull up these roots.

Aythya affinis (Eyt.)

LESSER SCAUP DUCK.

Popular synonyms. Little Black-head; Little Blue-bill; River Blue-bill; March Blue-bill; Mud Blue-bill; Broad-bill; Creek Broad-bill (Long Island); pato boludo de cabeza café (Mexico); River Shuffler.

Fuligula marila Aud. Orn. Biog. iii, 1835, 226; v. 1839, 614, pl. 229; Synop. 1839, 286; B. Am. vi, 1843, 316, pl. 397.

Fuligula affinis Eyton, Mon. Anat. 1838, 157.—Coues, Key, 1872, 289; Check List, 1873, No. 501; 2d ed. 1882, No. 721; B. N. W. 1874, 573.

Fulix affinis Baird, B. N. Am. 1858, 791; Cat. N. Am. B. 1859, No. 589.—Ridgw. Orn. 40th Par. 1877, 625; Nom. N. Am. B. 1881, No. 615.—B. B. & R. Water B. N. Am. ii, 1884, 22.

Aythya affinis Stejn. Orn. Expl. Kamtsch. 1885, 161.—A. O. U. Check List, 1886, No. 149.—Ridgw. Man. N. Am. B. 1887, 103.

Fuligula minor Bell, Proc. Acad. Nat. Sci. Phila. i, 1842, 141.—Giraud, B. Long. i, 1844, 323.

Hab. The whole of North America, south to Guatemala and the West Indies; breeds chiefly north of the United States.

Sp. Char. Similar to *A. marila nearctica*, but considerably smaller; adult male with the head less glossy and the gloss usually purplish instead of green; flanks waved or zigzagged with blackish. Total length, about 15.00–17.00 inches; extent, 26.00–27.75; wing, 7.50–8.25 (average 7.81); culmen, 1.58–1.90 (1.75); greatest width of bill, .80–.95 (.89); least width of bill .60–.78 (.69); tarsus, 1.15–1.50; middle toe, 2.00–2.25.

In addition to the characters of coloration mentioned above, the lower part of the neck is usually dull brownish and quite lustreless, in many examples forming as distinct a collar as in some specimens of *F. collaris*, though the color is never so rufescent as in the latter species.

The Little Black-head has much the same range and essentially the same habits as its larger relative (*A. marila nearctica*), though, as Dr. Brewer has truly said, it is extremely difficult, if not at present quite impossible, to state just wherein the two differ in these respects, in consequence of the confusion of their history resulting from the great similarity of their appearance. Dr. Brewer further states that so far as his own observations go, he is inclined to agree with Dr. Cooper in regarding the present species as a much more decided frequenter of the land than the other, and adds that "it is quite probable that much that has been written by Audubon and others in regard to the Scaup Duck, as seen on our rivers and lakes, may have had reference only to this species." "A careful examination," says he, "of Audubon's account of the habits of the Scaup Duck clearly indicates that nearly all he says of it belongs in reality to this species; and this supposition is strengthened by the fact

that he figures and describes the *affinis* rather than the larger Black-head. He speaks of observing the Scaup Duck by the thousand on the Ohio, the Missouri, and the Mississippi, from Pittsburg to New Orleans, where it occurred in such bands that it was generally known as the 'Flocking Fowl.' These ducks were seldom seen close together, and rarely associated with birds of other species. They seemed fond of large eddies below projecting points of land, frequently diving to a considerable distance in search of food. In such situations they might easily be approached and shot; and when danger was near they seemed to prefer to escape by swimming and diving rather than by flight, and they rose with some difficulty from the water. Audubon noted that these ducks differed greatly in size, but does not seem to have been led from this to suspect that they really belonged to two distinct species."

Aythya collaris (Donov.)

RING-NECKED DUCK.

Popular synonyms. Ring-billed Black-head; Ring-bill; Ring-billed Shuffler; Ring-necked Scaup Duck, or Blue-bill; Bastard Broad-bill (Long Island); Fall Duck (Minnesota); Black Jack (Illinois); Moon-bill (South Carolina); Pato boludo prieto (Mexico).

Anas collaris DONOVAN, Br. Birds, vi, 1809, pl. 147 (England).

Fuligula collaris BONAP. List B. Eur. 1842, 73.—COUES, Key, 1872, 289; Check List, 1873, No. 502; 2d ed. 1882, No. 722; B. N. W. 1874, 574.—HENSH. Zoöl. Wheeler's Exp. 1875, 479.

Fulix collaris BAIRD, B. N. Am. 1858, 792; N. Am. Cat. B. 1859, No. 590.—RIDGW. Orn. 40th Par. 1877, 625; Nom. N. Am. B. 1881, No. 616.—B. B. & R. Water B. N. Am. ii, 1884, 25.

Aythya collaris RIDGW. Proc. U. S. Nat. Mus. viii, 1885, 356; Man. N. Am. B. 1887, 104.—A. O. U. Check List, 1886, No. 150.

Anas fuligula WILS. Am. Orn. viii, 1814, 66, pl. 67, fig. 5 (not of LINN. 1766).

Anas (Fuligula) rufitorques BONAP. Jour. Phila. Acad. iii, 1824, 381.

Fuligula rufitorques BONAP. Synop. 1828, 393.—SW. & RICH. F. B.-A. ii, 1831, 454.—NUTT. Man. ii, 1834, 439.—AUD. Orn. Biog. iii, 1835, 259, pl. 234; Synop, 1839, 287; B. Am. vi, 1843, 320, pl. 398.

HAB. The whole of North America, south to Guatemala and the West Indies; breeding from Iowa, southern Wisconsin, Minnesota, and Maine northward. Accidental in Europe.

SP. CHAR. *Adult male:* Head, neck, chest, crissum, and upper parts generally, black, the head and neck with a faint violet gloss, the wing-coverts inclining to slate; secondaries ("speculum") bluish gray, darker sub-terminally, and very narrowly tipped with white; primaries slate-gray, the outer quills and ends of the others dusky. A triangular spot of white on the chin, and a more or less distinct collar of chestnut round the lower neck; breast and abdomen white, abruptly defined anteriorly against the black of the chest, but changing insensibly into the black on the crissum, through a graduated barring or transverse mottling of white and dusky; sides white, delicately waved with grayish dusky. Axillars and lining of the wing immaculate white. Bill lead-color, with a narrow basal and broad sub-terminal band of bluish white, the end black; iris bright yellow; legs and feet

pale slaty. *Adult female:* Crown and nape dull dark brown, becoming gradually lighter below; rest of the head paler and grayer, the anterior half of the lores, the chin, throat, and foreneck nearly or quite white; chest, sides, and flanks, deep fulvous or raw-umber brown; breast and abdomen white; anal region dull brown, longer feathers of the crissum whitish; wings as in the male; remaining upper parts dull dark brown, the feathers of the back narrowly tipped with fulvous. Bands on the bill narrower and less distinct than in the male; iris yellow; feet slaty.

Total length, about 16 to 18 inches; extent, 24–27; culmen, 1.75–2.00; tarsus, 1.30–145; middle toe, 2.00–2,15.

Downy young: Above, grayish umber-brown, relieved by seven spots of light buff, as follows: A small and inconspicuous spot in the middle of the back, between, and a little anterior to, the wings; a large patch on each side the back; another on each side the rump, at the base of the tail; and a bar across the posterior border of each wing. Crown, occiput, and nape crossed longitudinally by a wide stripe of deep grayish umber; a roundish isolated spot of light grayish brown directly over the ears; remainder of the head, including the forehead, and lower parts generally, light dingy buff, the flanks crossed by a brown transverse stripe from the rump to the tibia. Side of the head without any longitudinal stripes.

The chief variation in the plumage of this species consists in the distinctness of the chestnut collar in the male. In some examples this is scarcely more conspicuous than in *A. affinis*, being dull brown instead of reddish; but usually the color is a well-defined chestnut, particularly in front.

The female of this species resembles very closely in coloration that of the Red-head (*A. americana*), but may be readily distinguished by the very different proportions, the average measurements of the two being about as follows:

A. americana. Wing 8.50, culmen 1.90, greatest width of bill .85, least width .75, tarsus 1.60, middle toe 2.30.

A. collaris. Wing 7.50, culmen 1.80, greatest width of bill .85, least width .65, tarsus 1.35, middle toe 2.00.

There is very little in the habits of this species to distinguish it from the other "black-heads." Like them, it usually associates in small flocks, and its flesh is excellent, being fat, tender, and juicy. It often passes the winter in the southern portions of Illinois.

Genus **GLAUCIONETTA** Stejneger.

Clangula Flem. Philos. Jour. ii, 1822, 260. Type, *Anas clangula* Linn. (*Nec* Leach, 1819.)
Glaucion Kaup, Ent. Eur. Thierw. 1829, 53. Same type. (*Nec* Oken 1816.)
Glaucionetta Stejn. Proc. U. S. Nat. Mus. viii, Sept. 14, 1885, 409. Same type.

Gen. Char. Bill much shorter than the head, deep through the base, the lateral outlines converging toward the tip, which is rather pointed than rounded; lamellæ completely hidden by the overhanging edge of the maxilla; nostrils situated about midway between

the base and end of the bill; tarsus longer than the culmen; tail rather long (about half the wing) of sixteen feathers. Colors, pied white and black in the male, brown and white in the female.

Adult males have the head and upper neck black, glossed with green, blue or violet, and relieved by a white patch between bill and eye; upper parts pied black and white, lower parts entirely white, the flanks streaked with black. *Females* with head and upper neck brown, chest and part of upper surface grayish, collar round neck and most of lower parts white; wing dusky, with white on wing-coverts and secondaries. *Young males* similar to adult females, but white loral spot of adult more or less distinctly indicated, and gray of chest less extensive (sometimes quite obsoleto). *Males in post-nuptial plumage* are similar to young male, but wing-coverts more continuously white.

Two species are known, both of which occur in North America, though one of them is here represented by a race or sub-species distinguished from the Old World typical form by its large size. The two species may be distinguished as follows:

1. **G. clangula americana.** Height of upper mandible at base, measured from extremity of frontal angle to nearest point on cutting edge, less than distance from anterior point of loral feathering to anterior end of nostril; and usually little if any greater than distance from the latter point to tip of upper mandible.
2. **G. islandica.** Height of upper mandible at base, measured from extremity of frontal angle to nearest point on cutting edge, equal to distance from anterior point of loral feathering to anterior end of nostril, and much greater than distance from the latter point to tip of upper mandible.

Glaucionetta clangula americana (Bonap.)

AMERICAN GOLDEN-EYE.

Popular synonyms. Whistler; Whistle-wing; Great Head; Brass-eye; Merry-wing; Cob-head or Cub-head; Iron-head.

Anas clangula Wils. Am. Orn. viii, 1814, 62, pl, 67, fig. 5. (*Nec* Linn.)
Fuligula clangula Bonap. Synop. 1828, 393.—Nutt. Man. ii, 1834, 441.—Aud. Orn. Biog. iv, 1838, 318, pl. 342; Synop. 1839, 292; B. Am. vi, 1843, 362, pl. 406 (includes *islandica*).
Bucephala clangula Coues, Key, 1872, 290; Check List, 1873, No. 505; B. N. W. 1874, 576.—Hensh. Zoöl. Wheeler's Exp. 1875, 480.
Clangula glaucium Coues, Check List. 2d ed. 1882, No. 725.
Clangula vulgaris Sw. & Rich. F. B.-A. ii, 1831, 456.
Clangula americana Bonap. Comp. List, 1838, 58.
Bucephala americana Baird, B. N. Am. 1858, 796; Cat. N. Am. B. 1859, No. 593.
Clangula glaucium americana Ridgw. Proc. U. S. Nat. Mus. iii, 1880, 204; Nom. N. Am. B. 1881, No. 620.—B. B. & R. Water B. N. Am. ii, 1884, 44.
Bucephala clangula b. *americana* Ridgw. Orn. 40th Par. 1877, 626.
Glaucionetta clangula americana Stejn. Proc. U. S. Nat. Mus. viii, 1885, 409.—A. O. U. Check List, 1886, No. 151.—Ridgw. Man. N. Am. B. 1887, 105.

Hab. The whole of North America, breeding from Maine and the British Provinces northward; south to Cuba in winter.

Sp. Char. *Adult male:* Head and upper half of neck black, glossed with dark green, varying to violet; a roundish white spot between the rictus and the eye, but not reaching to the latter; back, inner scapulars, tertials, rump, and upper tail-coverts, deep black; lower half of the neck (all round), lower parts, outer scapulars, posterior lesser, middle, and greater

wing-coverts, and secondaries, pure white; anterior lesser wing-coverts, and outer edges of scapulars and flank feathers, and concealed portion of greater coverts, deep black; primaries blackish dusky; tail dull slate; sides of the anal region behind the flanks clouded with grayish. Bill black; iris bright yellow; feet orange-yellow, with dusky webs. *Adult female:* Similar to that of *G. islandica*, but head and neck hair-brown or grayish brown, rather than purplish sepia or snuff-brown; and white on the wing usually not interrupted by a distinct black bar.

Downy young. Upper parts generally, including the whole upper half of the head, to the rictus, and considerably below the eyes, the chest, sides, and thighs deep sooty brown, lighter and more grayish on the chest; the brown of the upper parts relieved by about eight spots of grayish white, as follows: one on the posterior border (secondary region) of each wing; one on each side the back; one on each side the rump, at the base of the tail; and one on each flank just before the brown of the thighs. Chin, throat, and cheeks pure white, in abrupt and decided contrast to the brown, which entirely surrounds it; remaining lower parts grayish white. Bill brownish; nail yellowish.

Adult male: Total length, about 18.50 to 20.00 inches; extent 31.00; wing, about 9.25; length of bill, from tip to end of basal angle, 1.85; depth at base, 1.00; width, .85; tarsus, 1 60; middle toe, 2.50. *Adult female:* Total length, 16.50; extent, 26.75; wing, 8.25; culmen, 1.60; depth of bill at base, .90; width, .70; tarsus, 1.40; middle toe, 2.20.

As stated under the head of *G. islandica* (p. 169), we are unable to discover, in the material at our command (consisting of upward of twenty specimens, including six unquestionable *G. islandica* and many more equally undoubted *G. clangula americana*) positive points of distinction between the female of the common and that of Barrow's Golden-eye. All specimens, however, possessing no dusky bar across the ends of the greater wing-coverts, interrupting the white wing-patch, should probably be referred to the present species. The females of both species are so variable in every character we have tested that it is quite impossible to say to which some examples should be referred.

Upon comparing a series of two males and as many females of the European Golden-eye (*G. clangula*) with a very large number of American specimens, we are unable to detect any difference in coloration. The difference in size, however, is so great, and, moreover, constant, as fully to justify their separation as distinct races.

The Golden-eye is a winter visitant to Illinois, its breeding range extending, "from the the 42d parallel northward" (BREWER), while its winter home is from about the same latitude southward.

"On Long Island, as Mr. Giraud states, the Golden-eye is better known among the hunters as the 'Whistler,' from the peculiar noise produced by its wings when flying. By others it is also called the "Great-head," from its beautifully rich and thickly crested head. On that island it is said to be a not very

abundant species, arriving there in company with other migratory ducks. He met with it in the fall and spring on the Delaware and in Chesapeake Bay, as well as at Egg Harbor and on Long Island. In the interior it is said to be much more common. Its food seems to consist of small shell and other fish, which it procures by diving. In the fall its flesh is said to be about equal or even superior to that of the Scaup Duck. It is very shy, and is decoyed with great difficulty. In stormy weather it often takes shelter in the coves with the Scaup Duck, and there it may be more readily killed. It usually flies very high, and the whistling sound produced by the action of its wings is the only noise that it makes as it proceeds.

"Audubon found the Golden-eye abundant in South Carolina during the winter, where at times it frequented the preserves of the rice-planters. He also met with it at that season on the water-courses of Florida. In the Ohio River he found it preferring the eddies and rapids, and there it was in the habit of diving for its food. Naturally the Golden-eye is chiefly seen in company with the Buffle-head, the Merganser, and other species that are expert divers like itself. When wounded, unless badly hurt, its power of diving and of remaining under water is so remarkable that it cannot be taken." (*Water Birds of North America.*)

Glaucionetta islandica (Gmel.)

BARROW'S GOLDEN-EYE.

Popular synonyms. Rocky Mountain Golden-eye; Rocky Mountain Garrot.

Anas islandica GMEL. S. N. i, pt. ii, 1788, 541.

Bucephala islandica BAIRD, B. N. Am. 1858, 796; Cat. N. Am. B. 1859, No. 594.—COUES, Key, 1872, 290; Check List, 1873, No. 506; Birds N. W. 1874, 577.

Clangula islandica BONAP. Cat. Met. Ucc. Eur. 1842, 74.—RIDGW. Nom. N. Am. B. 1881, No. 619.—COUES, Check List, 2d ed. 1882, No. 726.—B. B. & R. Water B. N. Am. ii, 1884, 41.

Glaucionetta islandica STEJN. Proc. U. S. Nat. Mus. viii, 1885, 409.—A. O. U. Check List, 1886, No. 152.—RIDGW. Man. N. Am. B. 1887, 105.

Clangula barrovii SW. & RICH. F. B.-A. ii, 1831, 456 pl. 70 (male).

Fuligula barrovii NUTT. Man. ii, 1834, 444.

Clangula scapularis BREHM, Vög. Deutschl. 1831, 932.

Fuligula clangula, var. AUD. Orn. Biog. v, 1839, 105, pl. 403; Synop. 1839, 292 (part); B. Am. vii, 1843, 362 (part; describes the species as supposed summer plumage of *B. clangula*).

HAB. Northern North America, south in winter to New York, Illinois, Utah, etc.; breeding in high north, and south in the Rocky Mountains to Colorado. Greenland; Iceland; accidental in Europe.

SP. CHAR. *Adult male:* Head and upper half of the neck glossy blue-black, with reflections of green, blue, and violet, according to the light; a somewhat wedge-shaped vertical patch of white across the anterior half of the lores, bordering the lateral base of the bill, the upper part forming an acute angle on each side of the forehead, the lower part rounded. Upper parts velvety black, with a soft bluish violet tinge; outer row of scapulars marked with a mesial cuneate stripe of satiny white, the greater portion of the stripes concealed, so that the exposed portion forms roundish or oblong spots; middle wing-coverts white, producing a broad bar; exposed terminal half of greater coverts, with the whole of the exposed portion of the five or six inner secondaries, white, forming a large, somewhat cuneate, patch. Outer feathers of the sides and flanks widely edged exteriorly with deep black; femoral region and sides of crissum dull black. Lower half of neck (all round) and entire lower parts (except as described) pure white. Bill black (in skin); iris bright yellow; legs and feet pale. *Adult female:* Head and upper half of the neck dark sepia-brown, considerably darker and somewhat more purplish than in the female *G. clangula americana;* lower part of the neck, all round, white, sometimes tinged with gray on the nape. Upper parts dark grayish brown, the scapulars, interscapulars, and smaller wing-coverts tipped with lighter ash-gray; last two or three rows of middle wing-coverts tipped with white, forming a broken, rather narrow, transverse patch; greater coverts with the terminal half of their exposed portion white, as in the male, but distinctly tippped with blackish, forming a conspicuous dusky bar between the white of the coverts and that of the inner secondaries. Chest and sides ash-gray, the feathers darker and more uniform, the flanks darker; other lower parts pure white. Bill usually parti-colored (black and yellow), but sometimes wholly black.

Adult male: Wing, 9.00–9.40 inches; culmen, 1.65–1.80; depth of bill at base, 95–1.10, width, .75–.85; tarsus, 1.50–1.60; middle toe, 2.45–2.50. *Adult female:* Wing, 8.25–8.75 inches; culmen, 1.40–1.60; depth of bill, .85–.90; width, .70; tarsus, 1.30–1.60; middle toe, 2.15–2.20.

Bearing in mind the salient points of difference, as given above and on page 166, there need be no difficulty in distinguishing the adult male of this very distinct species from that of the common Golden-eye. With the female, however, the case is very different; the two species being so much alike that, with the series at our command (about twenty specimens, including six unquestionably referable to *G. islandica*), we must acknowledge our inability to give infallible points of distinction. The examples which are known to represent *G. islandica* differ from the positively determined females of *G. clangula americana* in the following respects: (1) The color of the head and upper half of the neck is considerably darker, being a rich sepia- or snuff-brown, rather than grayish brown; (2) the greater wing-coverts are distinctly tipped with black, forming a conspicuous dusky stripe between the two larger white areas of the wing, which in *G. clangula americana* are (usually, at least) merged into one continuous space. Further than these we find no distinction, while indeed some examples are so decidedly intermediate in both respects as to render it quite uncertain to

which species they belong. Of the two characters named, however, the color of the head seems far the more constant, and may, perhaps, be found quite distinctive.

All that can at present be said of Barrow's Golden-eye as a bird of Illinois is that it is a rare winter visitant, reaching here about the southern limit of its distribution. Comparatively little is known as to its habits, which, doubtless, in the main, closely resemble those of the common species.

Genus **CHARITONETTA** Stejneger.

Charitonetta Stejn. Orn. Expl. Kamtsch. 1885, 163. Type, *Anas albeola* Linn.

Gen. Char. Similar to *Glaucionetta*, but nostril narrower and situated much farther back, being behind the middle of the upper mandible instead of slightly anterior to the middle; lamellæ hidden behind the edge of the maxilla; outer toe, with claw, decidedly longer than middle toe, and tip of inner toe, without claw, reaching only to second joint of middle toe; tail more than twice as long as tarsus, reaching beyond the folded wings by nearly twice the length of the culmen.

This genus contains a single species, the beautiful little Butter-ball or Buffle-head (*C. albeola*).

Charitonetta albeola (Linn.)

BUFFLE-HEAD.

Popular synonyms. Butter-ball; Butter-box; Butter Duck; Spirit Duck; Dipper, or Di-dipper, or Di-dapper; Marionette (New Orleans); Robin Dipper; Scotch Dipper, Scotch Duck, Scotch Teal, or Scotchman (North Carolina); Wool-head (Currituck Sound, N. C.).

Anas albeola Linn. S. N. ed. 10, i, 1758, 124; ed. 12, i, 1766, 199.—Wils. Am. Orn. viii, 1814, 51, pl. 62, figs. 2, 3.

Fuligula albeola Bonap. Synop. 1828, 394.—Nutt. Man. ii, 1834, 445.—Aud. Orn. Biog. iv, 1837, 217, pl. 225; Synop. 1839, 293; B. Am. vi, 1843, 369, pl. 408.

Clangula albeola Stephens, Shaw's Gen. Zoöl. xii, ii, 1824, 184.—Sw. & Rich. F. B.-A. ii, 1831, 458.—Ridgw. Nom. N. Am. B. 1881, No. 621.—Coues, Check List, 2d ed. 1882, No. 727.—B. B. & R. Water B. N. Am. ii, 1884, 48.

Bucephala albeola Baird, B. N. Am. 1858, 797; Cat. N. Am. B. 1859, No. 595.—Coues, Key, 1872, 290; Check List, 1873, No. 507; Birds, N. W. 1874, 577.—Hensh. Zoöl. Wheeler's Exp. 1875, 482.—Ridgw. Orn. 40th Par. 1877, 626.

Charitonetta albeola Stejn. Orn. Expl. Kamtsch. 1885, 166.—A. O. U. Check List, 1886, No. 153.—Ridgw. Man. N. Am. B. 1887, 106.

Anas bucephala Linn. S. N. ed. 10, i, 1758, 125; ed. 12, i, 1766, 200 (male).

Anas rustica Linn. l. c., 201 (female).

Hab. North America, breeding from Iowa (?) and Minnesota northward; wintering from United States south to Cuba and Mexico.

Sp. Char. *Adult male:* Head and upper half of the neck rich silky metallic green, violet-purple and greenish bronze, the last prevailing on the lower part of the neck, the green on the anterior part of the head, the purple on the cheeks and crown; a large patch

of pure white on the side of the head, extending from the eye backward to and around the occiput; lower half of the neck, lower parts generally, wing-coverts, secondaries, and outer scapulars pure white, the latter narrowly, and the feathers of the flanks more widely, edged with black; posterior parts of the body beneath tinged with pale ash-gray; upper tail-coverts light hoary gray; tail slate-gray, the shafts black. Bill bluish plumbeous, dusky on the nail and at base; iris very dark brown; legs and feet pinkish, or lilaceous, white. Total length, about 14.50 inches; extent, 24.50; wing, 6.75–6.90; culmen, 1.10–1.15; tarsus, 1.30; middle toe, 1.90–2.00. *Adult female:* Head, neck, and upper parts generally dusky grayish brown; an oblong or somewhat ovate white longitudinal patch on the auricular region, and the inner secondaries (sometimes also the greater wing-coverts, except at ends), white; lower parts white, tinged with brownish gray posteriorly, anteriorly, and laterally. Bill dusky, inclining to plumbeous at end and along commissure; iris very dark brown; legs and toes dilute lilac-pink, the webs and joints darker. Length, about 12.50 inches; extent, 21.00; wing, 5.90–6.00; culmen, .95–1.00; tarsus, 1.15–1.20; middle toe, 1.75.

There is very little variation among the males of this species. The females vary in the markings of the wing, some having the greater coverts white, tipped with dusky; while in others only the inner secondaries are white.

This very beautiful little duck is a winter resident in the southern portions of Illinois, its summer home being chiefly to the northward of the United States. Audubon "met with it, during extremely cold weather, on the Ohio, when the river was thickly covered with floating ice, among which it was seen diving, almost constantly, in search of food. When the river was frozen over, these birds sought the headwaters of rapid streams, and in their turbulent eddies found an abundance of food. Apparently feeling secure in the rapidity with which they can dive, they allow a very near approach; but at the first snap of the gun dive with the quickness of thought, and often as quickly rise again within a few yards of the same spot."

Genus **HISTRIONICUS** Lesson.

Histrionicus Less. Man. ii. 1828, 415. Type, *Anas histrionica* Linn.
Cosmonessa Kaup, Entw. Europ. Thierw. 1829, 46. Same type.
Cosmonetta Kaup. l. c., 196.
Phylaconetta Brandt, Mem. Ac. St. Petersb. vi, 1849, 4. Same type.

Gen. Char. Most like *Glaucionetta*. Bill very small (shorter than the tarsus), the lateral outlines converging rapidly to the tip, which is occupied entirely by the very large nail; depth of the maxilla at the base about equal to its width; lamellæ entirely hidden by the overhanging maxillary tomium; upper basal portion of the maxilla forming a decided angle, inserted between the feathering of the forehead and that of the lores, the former reaching rather farther forward; a slight membranous lobe at the lower base of the maxilla, overhanging the rictus. Tail rather long (more than half the wing), much graduated, consisting of fourteen feathers. Plumage of the sexes very different, the male very handsomely marked, the female very sombre.

But a single species of this well-marked genus is known. This, the Harlequin Duck, is common to both continents of the northern hemisphere, where it inhabits chiefly high latitudes.

Histrionicus histrionicus (Linn).

HARLEQUIN DUCK.

Popular synomyms. Lord and Lady (Maine, New Brunswick, etc.); Painted Duck and Mountain Duck (Hudson's Bay); Rock Duck (Nova Scotia); Squealer (Maine).

Anas histrionica Linn. S. N. ed. 10, i, 1758, 127; ed. 12, i, 1766, 204.—Wils. Am. Orn. viii, 1814, 139, pl. 72 fig. 4.

Fuligula (Clangula) histrionica Bonap. Synop. 1828, 394.—Nutt. Man. ii, 1834, 448.

Fuligula histrionica Aud. Orn. Biog. iii, 1835, 612; v, 1839, 617; Synop. 1839, 617; B. Am. vi, 1843, 374, pl. 409.

Histrionicus histrionicus Bouc. Cat. Av. 1876, 60.—A. O. U. Check List, 1886, No. 155.—Ridgw. Man. N. Am. B. 1887, 107.

Clangula torquata Brehm, Vogelf. 1855, 385.

Histrionicus torquatus Bonap. Comp. Rend. xliii, 1856.—Baird, B. N. Am. 1858, 798; Cat. N. Am. B. 1859, No. 596.—Coues, Key, 1872, 291; Check List, 1873, No. 510; B. N. W. 1874, 578.

Anas minuta Linn. S. N. ed. 10, i, 1758, 127; ed. 12, i, 1766, 204 (female.)

Histrionicus minutus Dresser, Birds of Europe (in text).—Coues, Bull. Nutt. Orn. Club, v, Apr. 1880, 101; Check List, 2d ed. 1882, No. 730.—Ridgw. Nom. N. Am. B. 1881, No. 622.—B. B. & R. Water B. N. Am. ii, 1884, 52.

Hab. Northern North America, Europe, and Asia; south in winter to the Middle States, Illinois, Missouri, California, etc.; breeding south to Newfoundland, the Northern Rocky Mountains, and in the Sierra Nevada to lat. 38° or farther; Iceland; Eastern Asia.

Sp. Char. *Adult male:* Entire loral region, continued backward from its upper part in a stripe on each side of the crown, an oval spot over the ears, a stripe of a little more than an inch in length down each side of the nape, a narrow collar completely encircling the lower neck, a broad bar across each side of the breast, the middle portion (longitudinally) of the outer scapulars, the greater part of the tertials, a spot near the tip of the greater wing-coverts, and a small spot on each side of the crissum, at the base of the tail, white. A broad longitudinal stripe on each side of the crown and occiput, with entire sides and flanks, bright rufous. Head and neck, except as described, dark plumbeous, with a faint violaceous cast, becoming gradually black along the border of the white markings; pileum with a median stripe of blue-black extending from the base of the culmen to the occiput. Back, chest, and sides of the breast bluish plumbeous, the white collar and the white bar on the sides of the breast bordered on each side by deep blue-black; rump, upper tail-coverts, and crissum deep blue-black; abdomen dark sooty grayish, blending insensibly into the plumbeous of the breast and the black of the crissum, but distinctly defined against the rufous of the sides and flanks; wing-coverts plumbeous-slate; primaries and rectrices dusky black; secondaries ("speculum") metallic dark violet-blue; tertials white, the outer webs edged with black, the inner with dark plumbeous. Bill light yellowish olive, the extreme tip paler; iris reddish brown; feet pale bluish, the webs dusky, the claws whitish. *Adult male in post-nuptial plumage:* Pattern of the head-markings same as in the preceding, but the plumbeous much duller, the black stripe of the pileum dusky, the rufous on the sides of the crown and occiput wanting, or but faintly indicated. Upper parts in general nearly uniform dusky grayish brown, without well-defined white anywhere, no blue-black, and the speculum dull dusky brownish gray, with little, if any, gloss. Lower parts grayish white, each feather marked with a subterminal transverse spot of grayish brown, the sides, flanks, and crissum nearly uniform grayish brown; no rufous on sides or flanks, and collar round the lower neck imperfect, or only slightly indicated. *Adult female:* Somewhat

similar to the male, but the head, neck, and chest grayish brown, with a distinct white spot on the auricular region, and the lores and sides of the forehead inclining to white. Chest, sides, flanks, and crissum entirely uniform grayish brown. "Bill and feet dull bluish gray; iris brown" (AUDUBON). *Young.* Similar to the adult female, but above browner and more uniform, the chest, sides, flanks, and crissum tinged with umber.

Total length, about 17.50 inches; extent, 27.00; wing, 7.40 to nearly 8.00; culmen, 1.05–1.10; tarsus, 1.50; middle toe, 2.00. Female slightly smaller.

The Harlequin Duck is a winter visitant or resident in Illinois, but is probably not at any time a common species. In its summer home, which is in more northern or mountainous regions, it frequents swiftly running streams, where it delights to sport among the eddies below water falls or in the brawling rapids. Its nest is often placed in a hollow of a tree, but frequently in other situations.

GENUS **CLANGULA** LEACH.

Clangula LEACH, in Ross's Voy. Disc. 1819, App. p. xlviii. Type, *Anas glacialis* LINN.
Harelda LEACH, Steph. Gen. Zoöl. xii, 1824, 174. Type, *Anas glacialis* LINN.
Pagonetta KAUP, Ent. Europ. Thierw. 1829, 66. Same type.
Crymonessa MACG. Man. Brit. Orn. ii, 1842, 185. Same type.
Melonetta SUND. Tent. 1872, 149. Same type.

GEN. CHAR. Bill small (much shorter than the tarsus), all its outlines tapering rapidly to the end, which is occupied entirely by the very large broad nail; lower edge of the maxilla nearly straight for the basal half, then suddenly rising to the prominently decurved nail; lamellæ slightly exposed along the straight basal portion of the maxillary tomium; feathering at the base of the bill forming a nearly straight oblique line, advancing farthest forward on the forehead, and scarcely interrupted by any re-entrant angle, so prominent in most ducks. Adult male with the longer scapulars elongated and lanceolate, the rectrices (14 in number) acute, the middle pair slender and greatly lengthened.

The most important peculiarity of structure in this well-marked genus consists in the almost unique outline of the feathering at the base of the bill, this outline advancing gradually farther forward from the rictus to the base of the culmen, the continuity of the slightly curved line interrupted by only a very faint, sometimes scarcely perceptible, indentation at the place of the deep angle seen in most ducks. The only other genus showing an approach to this character is *Camptolaimus*, which, however, has the bill and other features very different.

But a single species is known, which, like *Histrionicus*, is circumpolar in its distribution, but descends to lower latitudes in winter.

Clangula hyemalis (Linn.)

OLD SQUAW.

Popular synonyms. Old Wife; South Southerly; Long-tailed Duck; Caca-wee (Canada); Swallow-tailed Duck; Hound (Newfoundland); Old Injun (Massachusetts and Connecticut); Old Molly; Old Billy; Coween or Cowheen (Ontario); Scolder or Scoldenore (New Hampshire and Massachusetts).

Anas hyemalis Linn. S. N. ed. 10, i, 1758, 126; ed. 12, i, 1766, 202
Anas hiemalis Brünn. Orn. Bor. 1764, 17.
Harelda hyemalis B. B. & R. Water B. N. Am. ii, 1884, 57.
Clangula hiemalis Brehm, Handb. Vög. Deutschl, 1831, 933.
Clangula hyemalis A. O. U. Check List, 1886, No. 154.—Ridgw. Man. N. Am. B. 1887, 106.
Anas glacialis Linn. S. N. ed. 12, i, 1766, 203.—Wils. Am. Orn. viii, 1814, 93, 96, pl. 70.
Harelda glacialis "Leach," Stephens, Shaw's Gen. Zoöl. xii, pt. ii, 1824, 175, pl. 58.—Sw. & Rich. F. B.-A. ii, 1831, 460.—Baird, B. N. Am. 1858, 800; Cat. N. Am. B. 1859, No. 597.—Coues, Key, 1872, 291; Check List, 1873, No. 508; 2d ed. 1882, No. 728; B. N. W. 1874, 579.—Ridgw. Nom. N. Am. B. 1881, No. 623.
Fuligula (Harelda) glacialis Nutt. Man. ii, 1834, 453.
Fuligula glacialis Aud. Orn. Biog. iv, 1838, 403, pl. 312; Synop. 1839, 295; B. Am. vi, 1843, 379, pl. 410.
Anas miclonia Bodd. Tabl. P. E. 1783, 58.
Anas longicauda Leach, Syst. Cat. Mam. and Birds Brit. Mus. 1816, 37.
Anas brachyrhynchos Beseke, Vög. Kurl. 1792, 50.
Platypus faberi Brehm, Lerb. Eur. Vög. ii, 1824, 1004.
Clangula faberi, megauros, musica, brachyrhynchos Brehm, V. D. 1831, 935, 936, 937, 938.

Hab. Northern hemisphere; in America, south in winter to nearly the southern border of the United States.

Sp. Char. *Adult male in winter:* Forehead, crown, occiput, nape, chin, throat, lower part of the neck (all round), and upper part of the chest and back, white; lores, cheeks, and orbital region light mouse-gray, the eyelids white; a large oblong space covering the sides of the neck, black, becoming light grayish brown in its lower portion. Middle of the back, rump, upper tail-coverts, tail, wings, lower part of the chest, whole breast, and upper part of the abdomen, black; the pectoral area very abruptly defined both anteriorly and posteriorly—the latter with a strongly convex outline. Scapulars glaucous-white or very pale pearl-gray; posterior lower parts white, the sides strongly shaded with pearl-gray. Basal half of the bill black, the terminal portion orange-yellow or pinkish, with the nail bluish gray; iris bright carmine; feet light plumbeous, the webs dusky, and claws black. "The outer half of the bill rich orange-yellow, that color extending to the base along the ridge, the unguis and the basal half black, as well as the unguis and edges of the lower mandible" (Audubon). *Adult male, in summer:* Lores, cheeks, and sides of the forehead, pale mouse-gray; eyelids, and a postocular longitudinal space, white; rest of the head, whole neck, and upper parts generally sooty-black; upper part of the back more or less variegated with fulvous; scapulars widely edged with the same, varying on some feathers to ochraceous and pale buff. Breast and upper part of the abdomen dark sooty-grayish, abruptly defined behind with a semicircular outline, as in the winter plumage; remaining lower parts white, shaded on the sides with pale pearl-gray. Bill black, crossed, in front of the nostrils, by a wide band of orange; iris yellowish brown; feet bluish black, the joints and under surface of the webs black. *Adult female, in winter:* Head, neck, and lower parts, chiefly white; forehead, medially, and crown, dusky; auricular region, chin, and throat, tinged with the same; chest light dingy gray. Upper parts dusky brown, the scapulars bordered with grayish fulvous or light raw-umber brown, some of the feathers tipped with pale ashy. *Adult female, in summer:* Head and neck dark grayish brown, with a large space surrounding the eye, and another on the side of the neck, grayish white; upper parts as in the winter plumage, but upper part of the back variegated

with light brown, the scapulars chiefly of this color, with the central portion dusky. "Bill and feet dusky green; iris yellow" (AUDUBON). *Young:* Somewhat similar to the winter female, but much more uniform above, with scarcely any lighter borders to the scapulars, the head and neck light brownish gray, darker on the pileum, and indistinctly whitish before and behind the eye.

Downy young: Above, uniform dark hair-brown, relieved only on side of head by a grayish white space on lower eyelid, a similar but smaller spot immediately above the eye, a light brownish gray loral stripe, and a light brownish gray postocular spot; brown on side of head forming a broad stripe from the rictus back to occiput. Lower parts white, interrupted by a distinct jugular collar of sooty hair-brown. Bill and feet dusky (in dried skins).

Adult male: Total length, about 23 inches; extent, 30.00; wing, 8.50–9.00; tail, 8.00–8.50; culmen, 1.10; tarsus, 1.35; middle toe, 1.90. *Female*, smaller, the total length considerably less, owing chiefly to the abbreviation of the middle rectrices.

The Old Squaw or South-Southerly is a winter visitant to Illinois, its breeding range being far to the northward. Mr. Nelson found it to be an abundant winter resident on Lake Michigan, where the first stragglers arrived about the last of October, the main body arriving about a month later and departing about the first of April, a few lingering until about the last of the month. Farther south it is of less regular occurrence as well as less numerous, though doubtless occurring "off and on" through the winter on the larger rivers.

In its habits there is nothing particularly distinctive of this species, except the character of its notes, which are described as being loud and somewhat musical. Dr. Brewer says that its voice is one of its great peculiarities, and is very distinct from that of any other of the ducks, being really musical when heard from a distance, especially if there are a large number of individuals joining in the refrain. The words *south-south-southerly*, which some have fancied to resemble its cry and which have accordingly been used as one of its local names, did not, however, to his ear, in the least resemble the sounds which the bird makes; but he adds that the names "Old Wives" and "Old Squaws" as applied to the species are not inappropriate, since when many are assembled their notes resemble a confused gabble.

GENUS **SOMATERIA** LEACH.

Somateria LEACH, in Ross's Voy. Disc. 1819, App. p. xlviii. Type, *Anas mollissima* LINN.

GEN. CHAR. Bill about as long as the head, narrower than deep, the tip formed by the very broad, large nail; feathers of the forehead advancing forward in a long narrow-pointed strip, between two backward extensions of the maxilla, which, intervening between

the frontal feathers and those of the cheeks, form a distinct basal angle or lobe; maxillary tomium regular and nearly straight, the lamellæ completely concealed. Head with some portions bristly feathered (in males); tertials falcate; tail small, short, and pointed, composed of fourteen pointed feathers. *Adult males* with the plumage pied black and white (the lower parts chiefly black, the upper surface mostly white), the breast more buff or cream colored, the head varied with light green, black, etc. *Females* and *young* with the plumage barred with dusky and pale fulvous or rusty, the head and neck streaked with the same. Length about 20.00–26.00 inches.

The four species which compose this genus differ more or less from one another in form, but they all possess the characters defined above. Like the more or less nearly related genera *Arctonetta*, *Eniconetta*, *Histrionicus*, and *Camptolaimus*, they are birds of high northern latitudes, barely entering the warm temperate zone in winter.

This genus includes two subgenera, the characters of which are as follows:

Somateria. Frontal feathers reaching about half way from the base of the maxilliary angle or lobe to the nostril; feathering of lores extending forward to beneath the middle of the nostril; adult males with scapulars and tertials white and top of head black.

Erionetta. Frontal feathers reaching forward as far as the nostrils; feathering of the lores extending only about half way to the nostrils; adult males with scapulars and tertials black, and top of head light grayish blue.

Subgenus **SOMATERIA** Leach.

Somateria Leach, in Ross's Voy. Disc. 1819, App. p. xlviii. Type, *Anas mollissima* Linn.

Subgen. Char. Anterior point of feathering on forehead reaching only about half way from the point of the naked angle on side of forehead to nostril; feathering of lores extending forward to at least beneath the posterior end of the nostril; *adult males* with scapulars and tertials white, the top of head chiefly black.

Three species of this subgenus occur in North America, one of them being only subspecifically distinct from the European Eider (*S. mollissima*). One of them visits northern Illinois during winter, while another may reasonably be expected to occur there, since farther eastward it is found not uncommonly in Massachusetts.

The differential characters of these two species are as follows:

S. mollissima borealis. *Adult male* with lobe or angle of bill narrow and pointed, its length, from anterior extremity of loral feathering, 1.38–1.52; width across middle, not more than .30; black of head bordered below by pure white, except at posterior extremity; *female* with angle of bill 1.20–1.40, depth of upper mandible at base 0.78–0.95. Hab. Greenland, shores of Cumberland Gulf, and northern Labrador, south in winter to Massachusetts.

S. dresseri. *Adult male* with lobe or angle of bill broad and rounded at posterior extremity, its length, from anterior extremity of loral feathering, 1.75–2.00; width across middle, not less than .45; black of head bordered below by pale green for nearly the whole length; *female* with angle of bill about 1.87 x .22, depth of upper mandible at base .78.

The third American species, the Pacific Eider (*S. v-nigra*) is a larger and finer bird than either of the eastern species. It resembles them in color but has a large V-shaped black mark on the throat and a bright orange-colored bill. It inhabits the northwestern parts of the continent, as well as northeastern Asia.

Somateria dresseri Sharpe.

AMERICAN EIDER.

Popular synonyms. Wamp (Connecticut); Squam Duck (Maine); Big Sea Duck (Long Island).

Anas mollissima WILS. Am. Orn. viii, 1814, 122, pl. 71 (*nec* LINN.).

Fuligula (Somateria) mollissima NUTT. Man. ii, 1834, 407.

Fuligula mollissima AUD. Orn. Biog. iii, 1835, 344; v, 1839, 611, pl. 246; Synop. 1839, 291; B. Am. vi, 1843, 349, pl. 405.

Somateria mollissima BONAP. Comp. List, 1838, 57 (part).—BAIRD, B. N. Am. 1858, 809; Cat. N. Am. B. 1859, No. 606.—COUES, Key, 1872, 293; Check List, 1873, No. 513.

Somateria dresseri SHARPE, Ann. Mag. N. H. July, 1871, 51, figs. 1.2.—B. B. & R. Water B. N. Am. ii, 1884, 76.—A. O. U. Check List, 1886, No. 160.—RIDGW. Man. N. Am. B. 1887, 110.

Somateria mollissima, var. (?) *dresseri* COUES, Birds N. W. 1874, 580.

Somateria mollissima dresseri RIDGW. Proc. U. S. Nat. Mus. iii, 1880, 205, 222; Nom. N. Am. B. 1881, No. 627 *a*.—COUES, Check List, 2d ed. 1882, No. 734.

HAB. American coasts of the North Atlantic, from Maine, Newfoundland, etc., to Labrador; in winter, south to Long Island, Delaware, Ontario, Wisconsin, and northern Ohio and Illinois.

SP. CHAR. *Adult male:* Similar to *S. mollissima*, but the "cere" very much broader (.38 to .50 of an inch wide anteriorly), much corrugated, the posterior extremity broad and rounded; green of the head rather more extended, usually following along underneath the black almost or quite to the bill. "Bill pale grayish yellow, the unguis lighter, the soft tumid part pale flesh-color; iris brown; feet dingy light green, the webs dusky" (AUDUBON). *Adult female:* Scarcely distinguishable from that of *S. mollissima*, but basal angles of the maxilla deeper and broader. "Bill pale grayish green; iris and feet as in the male" (AUDUBON)*. *Downy young:* Not distinguishable from that of *S. mollissima*(?).

Total length, about 24.00 to 26.00 inches; extent, 39.00 to 42.00; wing, 11.15–11.50; culmen, 1.95–2.40; from tip of bill to end of basal angle, 2.75–3.35; greatest width of angle, .38–.59; tarsus, 2.00–2.20; middle toe, 2.50–2.70 (six examples).

Though nearly related to the true Eider of Europe (*S. mollissima*), the American Eider is clearly distinct. Its habits, however, are much the same.

The fresh color of an adult male received at the National Museum from Wood's Holl, Massachusetts, February 24, 1888, were as follows: Lobes of bill, as far as the nostrils, dull clay-yellowish, lighter and more tinged with olive along lower edge; nails of bill dull grayish greenish white; rest of bill horn-grayish; feet light yellowish olive, the webs grayish dusky.

Subgenus **ERIONETTA** Coues.

Erionetta Coues, Key to N. Am. Birds, ed. 2, 1884, 709. Type, *Anas spectabilis* Linn.

Subgen. Char. Anterior point of feathering on forehead reaching as far forward as posterior end of nostril, the loral feathering extending only about half as far. *Adult male* with scapulars and tertials black, the top of the head light bluish gray; lateral base of upper mandible, in adult male, enlarged into a very conspicuous broad lobe, the width of which at widest part exceeds the depth of upper mandible at anterior end of nostril.

The single species belonging to this subgenus is the beautiful King Eider (*S. spectabilis*).

Somateria spectabilis (Linn.)

KING EIDER.

Anas spectabilis Linn. S. N. ed. 10, i, 1758, 123; ed. 12, i, 1766, 195.

Somateria spectabilis Leach, in Ross's Voy. 1819, App. p. xlviii.—Sw. & Rich. F. B.-A. ii, 1831, 447.—Baird, B. N. Am. 1858, 810; Cat. N. Am. B. 1859, No. 608. Coues, Key, 1872, 293; Check List, 1873, No. 515; 2d ed. 1882, No. 736; B. N.W. 1874, 581.—Ridgw. Nom. N. Am. B. 1881, No. 629; Man. N. Am. B. 1887, 110.—B. B. & R. Water B. N. Am. ii, 1884, 83.—A. O. U. Check List, 1886, No. 162.

Fuligula (Somateria) spectabilis Bonap. Synop. 1828, 389.—Nutt. Man. ii, 1834, 414.

Fuligula spectabilis Aud. Orn. Biog. iii, 1835, 523, pl. 276; Synop. 1839, 291; B. Am. vi, 1843, 347, pl. 404.

Anas beringii Gm. S. N. i, 1788, 508.

Anas superba Leach, Syst. Cat. 1816.

Hab. Northern part of the northern hemisphere; in America, south, in winter, to New Jersey and the Great Lakes, casually to Georgia and coast of California.

Sp. Char. *Adult male:* Feathers bordering the base of the maxilla all round, a spot beneath and behind the eye, and a large V-shaped mark on the throat, black; entire top of the head and upper part of the nape delicate pearl-gray, or glaucous-blue, growing gradually deeper behind, where sometimes bordered by an indistinct blackish line; upper and anterior portion of the cheeks, below the eye and immediately behind the black bordering the side of the bill, and an oblique patch on the auricular region delicate sea-green, the auricular patch abruptly defined anteriorly, but above gradually fading into white along the edge of the bluish gray of the occiput and nape; remainder of the head, neck, middle of the back, wing-coverts (except greater coverts and exterior border of lesser coverts), lining of wing, and a patch on each side of the rump white; breast and chest deep creamy buff. Remainder of the plumage dull black, the falcate tertials with a narrow and rather indistinct central stripe of dull brownish. "Bill flesh-colored, the sides of the upper mandible and soft frontal lobes bright orange; iris bright yellow; feet dull orange, the webs dusky, the claws brownish black" (Audubon). *Adult female, in summer:* Pale fulvous, varied with black, the latter occupying the central portion of the feathers on the dorsal region, forming streaks on the head and neck, and bars on the chest, sides, flanks, and upper tail-coverts; abdomen and anal region nearly plain grayish brown; wing-coverts, remiges, and rectrices plain grayish dusky, the primaries darker; greater coverts and secondaries scarcely, if at all, tipped with white; rump nearly plain dusky. *Adult female, in autumn:* Rich cinnamon-rufous, varied with black much as in the summer plumage; abdomen and anal region plain brown; greater coverts and secondaries distinctly tipped with white. *Young male:* Head and neck plain umber-brown; upper parts dusky, the feathers bordered with fulvous, especially the scapulars; rump, greater

wing-coverts, remiges, and tail plain dusky; upper tail-coverts and lower parts barred with pale fulvous and dusky, the abdomen nearly plain grayish brown. "Bill pale greenish gray; iris dull yellow; feet dull ochre" (AUDUBON). *Young female:* Similar to the young male, but head and neck grayish-buff, finely streaked with dusky.

Total length, about 20.00–25.00 inches; wing, 10.50–11.25; bill, from base of frontal lobe to tip, in the male, 1.20–1.30; tarsus, 1.80–1.86; middle toe, 2.20.

The female of this species may be easily distinguished from that of *S. dresseri* by the very different outline of the feathering at the base of the bill, as explained, page 176.

This is the only one of the Eiders the range of which extends completely across the northern portion of the northern hemisphere. Its habits are essentially the same as those of the other species of the same genus. It migrates south in winter to a greater or less distance, but in varying numbers, according to the character of the season. It breeds in the arctic regions.

GENUS OIDEMIA FLEMING.

Oidemia FLEM. Philos. Zoöl. ii, 1822, 260. Type, by elimination, *Anas nigra* LINN.

GEN. CHAR. Distance from posterior border of nostril to angle of mouth equal to or greater than distance from anterior end of nostril to tip of upper mandible. *Adult males* uniform black, with or without white speculum, and with or without white patches on head; bill brightly colored in life with tints of yellow, orange, or red, but partly black. *Adult females* plain brownish, lighter and more grayish beneath, the white head-markings of the male (if any) indistinctly indicated.

This genus includes three subgenera, with the following characters:

A. Length of commissure much less than inner toe, without claw; adult males entirely uniform black; bill of adult male much swollen on top at base; distance from anterior end of nostril to nearest feathers of forehead greater than distance from same point to tip of bill.
1. Oidemia.

B. Length of commissure much more than length of inner toe without claw.

a. Feathering of head advancing nearly or quite as far forward on lores as on forehead; wing with a white "speculum."
2. Melanitta.

b. Feathering of head advancing much farther forward on forehead than on lores; wing without white "speculum."
3. Pelionetta.

SUBGENUS OIDEMIA FLEMING.

Oidemia FLEM. Philos. Zoöl. ii, 1822, 260. Type, by elimination, *Anas nigra* LINN.

SUBGEN. CHAR. Feathers at the base of the maxilla forming a nearly straight oblique line from the forehead back to the rictus, advancing scarcely, if at all, on the forehead; bill very deep through the base, where sometimes elevated into a roundish knob, and much de-

pressed toward the end. No white whatever on the plumage, which is deep black, the bill partly orange, in the males. Females dull grayish brown (lighter below), the bill wholly black.

Two species only of this genus are known, one European, the other American. They are much alike, but may be distinguished by the shape and coloration of the bill.

Oidemia americana Sw. & Rich.

AMERICAN SCOTER.

Popular synonyms. American Black Scoter; Butter-bill, Butter-billed Coot, Hollow-billed Coot (New England); Scoter Duck; Yellow-bill; Copper-bill; Copper-nose; Pumpkin-blossom Coot; Smutty; Fitzy; Sleigh-bell Duck (Maine). *

Anas nigra WILS. Am. Orn. viii, 1814, 135, pl. 72 (not of LINN.).

Oidemia americana SW. & RICH. F. B.-A. ii, 1831, 450.—BAIRD, B. N. Am. 1858, 807; Cat. N. Am. B. 1859, No. 604.—A. O. U. Check List, 1886, No. 163.—RIDGW. Man. N. Am. B. 1887, 111.

Œdemia americana COUES, Key, 1872, 293; Check List, 1873, No. 516; 2d ed. 1882. No. 737; B. N. W. 1874, 581.—RIDGW. Nom. N. Am. B. 1881, No. 630.—B. B. & R. Water B. N. Am. ii, 1884, 89.

Fuligula (Oidemia) americana NUTT. Man. ii, 1834, 422.

Fuligula americana AUD. Orn. Biog. v, 1839, 117, pl. 408; Synop. 1839, 290; B. Am. vi, 1843, 343, pl. 403.

HAB. Coasts and larger inland waters of northern North America, south in winter to the Ohio River, New Jersey, and California. Mountains of Colorado (Boulder Co., June! ; Mrs. M. A. MAXWELL).

SP. CHAR. *Adult male:* Entire plumage uniform deep black, the neck very faintly glossed with dull violaceous, the feathers somewhat distinctly defined; basal half of the maxilla, except a stripe along the comium, bright orange (yellowish in the dried skin), the remainder of the bill black; iris hazel; legs and feet dull black. "The bulging part of the upper mandible is bright orange, paler above, that color extending to a little before the nostrils; the rest of the upper mandible, including its basal margin to the breadth of from three- to two-twelfths of an inch, black, as in the lower mandible. Iris brown. Feet brownish black" (AUDUBON). *Adult female:* Above, dull dark grayish brown, feathers of the back and scapulars tipped with lighter; lower parts lighter, the pale tips broader, though lacking on the posterior portions; lateral and lower parts of the head and neck nearly uniform very pale grayish brown, quite abruptly defined against the uniform dark brown of the pileum and napo. Bill entirely black. *Young:* Upper parts, chest, sides, and flanks, uniform dark grayish brown; sides of head and neck, chin and throat, dirty whitish, tinged with brownish gray, quite abruptly defined against the dark brown of the pileum and nape; abdomen whitish, each feather marked with a dusky grayish brown bar just beneath the surface, some of these bars exposed; anal region and crissum grayish brown, the feathers tipped with white. Bill and feet black.

Total length, about 17 to 19 inches; extent, 29 to 34. *Male:* Wing, 8.75–9.50; culmen, 1.65–1.80; tarsus, 1.65–2.00; middle toe, 2–50–2.80. *Female*, slightly smaller.

The Black Scoter is a northern species which visits the United States in winter. It is another of those species, usually classed as "sea ducks," which occur more or less numerously on the larger waters of the interior. Professor Cooke, in his "Bird

Cf. TRUMBULL, *Names and Portraits of Birds.*

Migration in the Mississippi Valley" (p. 73), states that Mr. C. W. Butler informed him that on May 2, 1883, he saw fifty of these ducks at Anna, Union county, all busily engaged in picking up millet seed that had just been sown. If no mistake of identification was made in this case, the observation in question apparently reveals a new feature in the habits of the species, which has been supposed to feed exclusively in the water and to subsist chiefly on fishes and their spawn and other aquatic animal food.

Subgenus **MELANITTA** Boie.

Melanitta Boie, Isis, 1822, 564. Type, by elimination, *Anas fusca* Linn.
Melanetta Gray, 1840; List Gen. 1841, 95.—Baird, B. N. Am. 1858, 805.
Maceranas Less. Man. ii, 1828, 414. Same type.

Subgen. Char. Feathers at the base of the bill extending forward almost to the nostril in three prominent angles—one on each side of the maxilla, the other on top, at the base of the culmen; sides of the maxilla rather sunken or compressed above the tomium. Colors uniform black or brown, with a white speculum on the wings, the adult male with a white spot immediately beneath the eye.

This subgenus differs from *Oidemia* and *Pelionetta* in the form of the bill, particularly in the outline of the feathering at the base, as defined above. Three species only are known, one peculiar to northern North America, one to northern Europe, but occurring also in Greenland, and the other to northeastern Asia.

Oidemia deglandi Bonap.

WHITE-WINGED SCOTER.

Popular synonyms. American Velvet Scoter; Velvet Duck; White-winged Coot; Uncle Sam Coot; Bull Coot; Assemblyman (Maryland).

Anas fusca Wils. Am. Orn. viii, 1814, 137, pl. 72 (not of Linn.).
Fuligula (Oidemia) fusca Bonap. Synop. 1828, 390.—Nutt. Man. ii, 1834, 419.
Oidemia fusca Sw. & Rich. F. B.-A. ii, 1831, 449.
Œdemia fusca Coues, Check List, 2d ed. 1882, No. 738.
Fuligula fusca Aud. Orn. Biog. iii, 1835, 454, pl. 247; Synop. 1839, 230; B. Am. vi, 1843, 332, pl. 401.
? *Fuligula bimaculata* Hebbert, Field Sports, 2d ed. ii, 1848, 366, fig. (young).
Oidemia (Pelionetta) bimaculata Baird, B. N. Am. 1858, 808.
Oidemia velvetina Cass. Proc. Acad. Nat. Sci. Phila. v, 1850, 126.
Melanetta velvetina Baird, B. N. Am. 1858, 805; Cat. N. Am. B. 1859, No. 601.—Ridgw. Nom. N. Am. B. 1881, No. 632.—B. B. & R. Water B. N. Am. ii, 1884, 93.

Œdemia fusca, b. (?) *velvetina* COUES, Birds N. W. 1874, 582.
Œdemia fusca var. (?) COUES, Key, 1872, 294; Check List, 1873, No. 517.
Oidemia deglandi BONAP. Rev. Crit. de l'Orn. Europ. de Degl. 1850, 108.—A. O. U. Check List, 1886, No. 165.—RIDGW. Man. N. Am. B. 1887, 112.

HAB. Northern North America; chiefly maritime, but occurring on various inland waters; south in winter to the Middle States, Great Lakes, Mississippi River near St. Louis, Illinois River, and southern California.

SP. CHAR. *Adult male:* Base of the culmen elevated into a prominent knob; lateral base of the maxilla sunken beneath the feathers of the lores. Plumage uniform brownish black. A crescentic spot beneath the eye, and extending backward for half an inch or more, secondaries, and greater wing-coverts, white. Knob of the bill, with base, and margin of the maxilla, black; "sides of the bill red-lead, fading into orange;" "nail vermilion, the anterior flat portion of the upper mandible whitish;" iris "white tinged with straw-yellow; legs scarlet, with black webs, and a tinge of black in the joints" (NUTTALL). *Young male:* Dark sooty brown, the head and neck sooty black; white on wings as in the adult, but no white spot beneath the eye. *Adult female:* Uniform grayish fuliginous, the wings darker; white speculum as in the male, but no white about the head, or with faint indications of white spot at base of maxilla and behind the eye. *In summer*, feathers of the back, scapular region, and chest narrowly tipped with light brownish gray. Bill uniform dusky; iris yellow; feet as in the male, but duller in color.

Total length, about 19.75 to 22.50 inches; extent, 36.00 to 40.00; wing, 10.75–12.00; commissure, 2.82; tarsus, 2.08.

Professor Cooke records the White-winged Scoter as being "generally distributed throughout Illinois in winter, but most common on Lake Michigan." Like the common species (*O. americana*) it frequents the larger bodies of water, usually riding far out from the shore, and in general habits is very much like its relatives.

SUBGENUS **PELIONETTA** KAUP.

Pelionetta KAUP, Sk. Entw. Europ. Thierw. 1829, 107. Type, *Anas perspicillata* LINN.

SUBGEN. CHAR. Feathers on the forehead extending in a broad strip nearly or quite as far as the posterior end of the nostrils, but those of the lores not advancing forward of the rictus; the lateral base of the maxilla in the adult male greatly swollen, and with the basal outline convex; nail very large and broad, but narrow terminally. No white on the wing, but the head with large white patches (indistinct in the female and young).

Except in the form of the bill, as described above, this subgenus very closely resembles *Melanitta* and *Oidemia*, but is sufficiently distinct. Only one species is known.

Oidemia perspicillata (Linn.)

SURF SCOTER.

Popular synonyms. Surf Duck; Sea Duck; Skunk-bill; Skunk-head Coot; Horse-head Coot, or Horse-head; Hollow-billed Coot (New England); Gray Coot; Spectacled Coot; Surf Coot (Long Island); Google-nose; Patch-head; Plaster-bill; Snuff-taker; Morocco-jaw; Blossom-bill, etc., etc.*

Anas perspicillata Linn. S. N. ed. 10, i, 1758, 125; ed. 12, i, 1766, 201.—Wils. Am. Orn. viii, 1824, 49, pl. 67.

Oidemia perspicillata Stephens, Gen. Zoöl. xii, pt. ii, 1824, 219.—Sw. & Rich. F. B.-A. ii, 1831, 449.—A. O. U. Check List, 1886, No. 166.—Ridgw. Man. N. Am. B. 1887, 113.

Fuligula (Oidemia) perspicillata Bonap. Synop. 1828, 389.—Nutt. Man. ii, 1834, 416.

Œdemia perspicillata Coues, Key, 1872, 294; Check List, 1873, No. 518; 2d ed. 1882, No. 739; B. N. W. 1874, 582.

Pelionetta perspicillata Reich. Syst. Av. 1852, p. viii.—Baird, B. N. Am. 1858, 806; Cat. N. Am. B. 1859, No. 602.—Ridgw. Nom. N. Am. B. 1881, No. 633.—B. B. & R. Water B. N. Am. ii, 1884, 98.

Fuligula perspicillata Aud. Orn. Biog. iv, 1838, 161, pl. 317; Synop. 1839, 289; B. Am. vi, 1843, 337, pl. 402.

Pelionetta trowbridgii Baird, B. N. Am. 1858, 806; Cat. N. Am. B. 1859, No. 603.

Œdemia perspicillata, var. *trowbridgii* Coues, Key, 1872, 295; Check List, 1873, No. 518 *a*.

Œdemia perspicillata, b. *trowbridgii* Coues, B. N. W. 1874, 592.

Œdemia perspicillata trowbridgii Coues, Check List, 2d ed. 1882, No. 740.

Hab. Coasts and larger inland waters of northern North America; south in winter to Atlantic coast of the United States, to the Ohio River, Kansas, etc., in the interior, and Lower California, on the Pacific side; accidental in Europe. Jamaica (and other West India islands?) in winter.

Sp. Char. *Adult male:* General color deep black, very intense above, more sooty on the lower surface; a white patch on the forehead, the anterior outline semicircular or somewhat angular, and reaching forward a little in advance of the lateral base of the bill, the posterior outline almost directly transverse, and a little posterior to the middle of the eye; nape with a somewhat shield-shaped, or cuneate, longitudinal patch of pure white, having the upper outline almost directly transverse. Bill chiefly orange-red, deeper (intense red in some specimens) above the nostrils; swollen base of the maxilla with a large, irregularly roundish, somewhat quadrate, or trapezoid, spot of deep black, with a light-colored space (bluish white in life) in front, as far as the nostrils; nails duller orange, or dingy grayish; iris yellowish white; feet orange-red, the webs greenish dusky; claws black. "Upper mandible with a nearly square black patch at the base, margined with orange, except in front, where there is a patch of bluish white extending to near the nostrils, prominent part over the nostrils deep reddish orange, becoming lighter toward the unguis, and shaded into rich yellow toward the margins; the unguis dingy grayish yellow; lower mandible flesh-colored, unguis darker. Iris bright yellowish white. Tarsi and toes orange-red, with webs dusky, tinged with green; claws black" (Audubon). *Adult female:* Pileum and nape brownish black; rest of the head ashy brown, with an indistinct whitish patch (not always indicated) on the lower anterior portion of the lores, bordering the lateral base of the bill; upper parts brownish dusky, the contour feathers sometimes showing paler tips; lower parts grayish brown, becoming nearly white on the abdomen, the feathers of the breast and sides tipped with the same, the anal region and crissum uniform dusky. Bill greenish black, scarcely swollen at the base, where the black spot of the male is slightly, if at all, indicated; iris yellowish white; "feet yellowish orange, webs grayish dusky, claws black" (Audubon). *Young:* Similar to the adult female, but head with two quite distinct whitish patches,

**Cf.* Trumbull, *Names and Portraits of Birds.*

one against the lateral base of the bill, the other over the auriculars, behind and below the eye; plumage above, more uniform than in the adult female, and feathers everywhere of a softer texture.

Total length, about 19.00–20.00 inches; extent, 31.00–34.00; wing, 9.25–9.75; culmen, 1.30–1.60; from tip of bill to lateral base, 2.35–2.60; distance through base of bill horizontally, between most prominent point of lateral swellings, 1.10–1.40; tarsus, 1.55–1.85; middle toe, 2.15–2.55 (twenty examples).

The handsome Surf-Duck is also a winter visitant to Illinois, where, according to Professor Cooke, it occurs on all the larger streams, as well as on Lake Michigan. Mr. Nelson records it as numerous on the Calumet marshes, during the fall and winter of 1875, where it arrived the last of October and remained until toward the end of March.

The following summary of its habits is given by Col. N. S. Goss, in *The Auk*, for April, 1889, p. 123:

"This species of sea duck is abundant upon both coasts, and during the breeding season is quite common upon the large northern inland waters; breeding from Sitka, Alaska, and the Gulf of St. Lawrence north to the Arctic coast. Its food consists largely of shell-fish (the mussel is a favorite, the shells of which appear to digest as easily as the animal within them) and fishes, and various forms of life also help to make up the bill of fare. Its flesh is coarse, and rather rank in flavor. The birds are at home as well in the surging surf as upon the smoother waters, resting and sleeping at night far out from the shore. They rise from the surface in a running, laborious manner, but when fairly on the wing fly rapidly, and in stormy weather hug close to the water. While feeding they are very active, constantly and rapidly diving, one after the other, continually disappearing and popping up."

Genus **ERISMATURA** Bonaparte.

Oxyura Bonap. Synop. 1828, 390. Type *Anas rubida* Wils. (*Nec Oxyurus* Swains. 1827).

Erismatura Bonap. Saggio. Distr. Met. 1832, 143. Same type.

Gymnura Nutt. Man. ii, 1834, 426. Same type.

Undina Gould, Birds Eur. v, 1836, pl. 383. Type, *Anas mersa* Pall,=*A. leucocephala* Scop.

Cerconectes Wagl. Isis, 1832, 282. Type, *A. leucocephala* Scop.

Bythonessa Glog. Handb. 1842, 472. Type, *A. leucocephala* Scop.

Gen. Char. Bill about as long as the head (much longer than the tarsus), very broad, widened toward the end, elevated at the base, the nostrils very small, and situated very near the culmen; maxillary unguis very small, narrow, and linear, the terminal half bent

abruptly downward and backward, so as to be invisible from above; tail more than half as long as the wings, much graduated, consisting of eighteen very stiff, narrow feathers, with the shafts strong and rigid, and grooved underneath, toward the base; the tail-coverts extremely short, scarcely covering the base of the tail; wings very short, and very concave beneath, the primaries scarcely or not at all extending beyond the tertials; tarsus very short, much less than one half as long as the longest toe.

Only one species, the common Ruddy Duck (*E. rubida*) occurs in North America.

Erismatura rubida (Wils.)

RUDDY DUCK.

Popular synonyms. Spine-tailed Duck; Heavy-tailed Duck; Quill-tail Coot, Stiff-tail, Bristle-tail; Book, or Rook Duck (Potomac River), Sleepy Duck, Sleepy Coot, Sleepy Brother; Fool Duck, Deaf Duck, Shot-pouch, Daub Duck, Stub-and-twist, Booby Coot, Batter Scoot, Blather-scoot, etc., etc.; *Pato zambullidor de pico azul (Mexico).

Anas rubida WILS. Am. Orn. viii, 1814, 128, 131 pl. 71, fig. 5, 6.
Fuligula (Gymnura) rubida NUTT. Man. ii, 1834, 426.
Fuligula rubida SW. & RICH. F. B.-A. ii, 1831, 455.—AUD. Orn. Biog. iv, 1838, 326; pl. 343; Synop. 1839, 288; B. Am. vi, 1843, 324, pl. 399.
Erismatura rubida BONAP. Comp. List, 1838, 59.—BAIRD, B. N. Am. 1858, 811; Cat. N. Am. B. 1859, No. 609.—COUES, Key, 1872, 295; Check List, 1873, No. 519; 2d ed. 1882, No. 741; Birds N. W. 1874, 583.—HENSH. Zoöl. Wheeler's Exp. 1875, 483.—RIDGW. Orn. 40th Par. 1877, 626; Nom. N. Am. B. 1881, No. 634; Man. N. Am. B. 1887, 113.—B. B. & R. Water B. N. Am. ii, 1884, 104.—A. O. U. Check List, 1886, No. 167.
Anas jamaicensis ORD, ed. Wils. viii, 1825, 138.

HAB. The whole of North America, breeding nearly throughout its range, which extends south to Guatemala and Colombia; Cuba and other West India islands.

SP. CHAR. *Adult male, full plumage:* Pileum and upper half of the nape uniform black; entire side of the head, below the eyes, including the malar region and chin, pure white; rest of neck, entire upper parts, sides, and flanks, rich chestnut-rufous or purplish ferruginous; wing-coverts and middle of the rump dusky grayish brown, minutely mottled with paler; remiges dull brownish dusky; rectrices brownish black, the shafts deep black; lower parts white on the surface, but the concealed portion of all the feathers dark brownish gray, showing when the feathers are disarranged, and in midsummer specimens completely exposed by abrasion of the tips of the feathers; chest strongly washed with fulvous-buff, this sometimes invading the abdomen. Lower tail-coverts entirely white, to the roots of the feathers. "Bill and edge of the eyelids grayish blue; iris hazel; feet dull grayish blue, webs inclining to dusky; claws grayish brown" (AUDUBON). *Adult female:* Top of the head, down to below the eyes, and upper parts generally, dusky grayish brown, minutely freckled with pale grayish fulvous (more reddish on the head); remainder of the head dirty grayish white, crossed longitudinally by a stripe of speckled dusky, running from the rictus backward across the auriculars, parallel with the lower edge of the brown of the top of the head; neck pale brownish gray, fading gradually into the white of the chin; lower parts, except sides and flanks (which are similar to the abdomen, but darker), as in the adult male. *Young:* Similar to the adult female. *Downy young:* Above, dark smoky brown, darker on the head; a whitish spot on each side the back; a brownish white stripe beneath the eye, from the bill to near the occiput; beneath this, a narrower dusky

* Also, Hickory-head, Greaser, Paddy, Noddy, Paddy-whack, Dinkey, Light-wood knot, Hard-tack, and so forth, according to the locality or the particular individual who is asked to name the species! See TRUMBULL'S *Names and Portraits of Birds.*

brown one, confluent with the brown of the nape, reaching almost or quite to the rictus Lower parts grayish white, strongly shaded with sooty brown across the chest.

Length, about 13.50–16.00; wing, 5.75–6.00; culmen, about 1.50–1.60.

Although the collection of the National Museum contains numerous examples of this species, only a small portion of them have the sex indicated, while on a still smaller number is the date noted. It is therefore difficult to determine satisfactorily, from the material at hand, the seasonal and sexual differences of plumage. Certain it is, however, that specimens in the plumage described above as that of the adult male in full plumage occur both in summer and winter. Audubon says that the "adult female in summer" "presents the same characters as in the male;" but although this may be true, the series under examination affords no indication of it. He describes the "male one year old" as having "a similar white patch on the side of the head; upper part of head and hind neck dull blackish brown; throat and sides of neck grayish brown, lower part of neck dull reddish brown, waved with dusky; upper parts as in the adult, but of a duller tint; lower parts grayish white."

Probably no North American duck has so extensive a breeding range as the present species, since it breeds as far south as Guatemala—perhaps even farther; as far north as Great Slave Lake, York Factory, and other localities in the subarctic portions of the continent, and from the Atlantic to the Pacific. According to Professor Cooke, it winters from southern Illinois southward.

"Audubon noticed it in large numbers during the winter months in Florida, sometimes shooting upwards of forty in a single morning; and he was informed by Dr. Bachman that this species had been becoming more and more abundant in South Carolina; yet he had never met with an example in full summer plumage. This duck seemed to be equally fond of salt, brackish, and fresh water. In the Southern States it congregates in great flocks. Its flight is rapid, with a whirring sound, occasioned by the concave form of the wings. It rises from the water with considerable difficulty, being obliged to assist itself with its broad webbed feet, and for that purpose to run on the surface for several yards. From the ground, however, it can spring up at once. This duck swims with ease and grace and deeply im-

mersed. It is also extremely expert at diving; and when wounded, often escapes by doing this, and then hiding in the grass, if there is any accessible." (*Water Birds of North America.*)

Mr. Salvin found this species more easily procurable than any other of the ducks frequenting the lake of Dueñas, in Guatemala, on account of a peculiarity in its powers of flight which renders its escape less easy than it would otherwise be. It can fly as well as any other when it is once fairly started, but rises with great difficulty from the water; and, in consequence of this, it can be approached within easy gunshot by sailing down upon it before the wind. Sometimes, however, it seeks safety by diving; and when it does this, so rapid are its motions that it is almost certain to escape.

The eggs of the Ruddy Duck are remarkably large in proportion to the size of the bird, and are distinguished from those of every other North American duck by the roughness of the shell.

Subfamily **MERGINÆ**.—The Mergansers.

Genus **MERGANSER** Brisson.

Merganser Briss. Orn. vi, 1760, 230. Type, *Mergus merganser* Linn.

Gen. Char. Bill longer than the head, the breadth uniformly about equal to the depth, the serrations conical, acute, and pointed backward; crest occipital, pointed, or scarcely developed and depressed. Tarsus nearly three fourths the middle toe, with claw. Tail about half the length of the wings. Bill mostly reddish. *Adult males* with head and upper neck greenish black, the occiput crested; rump, upper tail-coverts, and tail, plain ash-gray; rest of upper parts mainly pied black and whitish; lower parts rich creamy white or pale salmon-color. *Adult females* with head and upper neck cinnamon-brownish (occiput crested, as in the male), chin and part of throat white; upper parts grayish, with some white on wings; lower parts buffy white.

The two North American species of this genus may be readily distinguished as follows, the females alone resembling one another:

1. **M. americanus.** Nostrils situated near the middle of the maxilla; frontal feathers extending farther forward than those on lateral base of bill. *Adult male:* Head and most of the neck greenish black; head slightly crested; chest and other lower parts creamy white, or pale salmon-color. *Adult female:* Head and neck reddish (chin and throat white), the occiput with a full crest of lengthened feathers. Above, chiefly bluish gray.

2. **M. serrator.** Nostrils situated near the base of the maxilla; feathers on lateral base of bill extending farther forward than those on the forehead. *Adult male:* Head dull greenish black, the occiput with a long pointed crest of narrow feathers; neck and sides of the chest dull buff, or light cinnamon, streaked with black; other lower parts

mainly white. *Adult female:* Very similar in color to that of *M. americanus*, but distinguished by different position of the nostrils, and different outline of the feathering at base of the bill. Size also smaller.

Merganser americanus (Cass.)

AMERICAN MERGANSER.

Popular synonyms. Buff-breasted Merganser; Buff-breasted Sheldrake; Saw-bill; Fish Duck; Sheldrake, etc.

Mergus merganser WILS. Am. Orn. viii, 1814, 68, pl. 68 (*nec* LINN.).—SW. & RICH. F. B.-A. ii, 1831, 461.—NUTT. Man. ii, 1834, 460.—AUD. Orn. Biog. iv, 1838, 261, pl. 331; Synop. 1839, 297; B. Am. vi, 1843, 337, pl. 411.—COUES, Key, 1872, 296; Check List, 1873, No. 521; 2d ed. 1882, No. 743; Birds N. W. 1874, 583.—HENSH. Zoöl. Wheeler's Exp. 1875, 483.

Mergus americanus CASS. Proc. Acad. Nat. Sci. Phila. vi, 1853, 187.—BAIRD, B. N. Am. 1858, 813; Cat. N. Am B. 1859, No. 611.

Mergus castor, a. *americanus* BONAP. Compt. Rend. xliii, 1856, 652.

Mergus merganser β. *americanus* RIDGW. Orn. 40th Par. 1877, 627.

Mergus merganser americanus RIDGW. Proc. U. S. Nat. Mus. iii, 1880, 205; Nom. N. Am. B. 1881, No. 636.—B. B. & R. Water B. N. Am. ii, 1884, 112.

Merganser americanus STEJN. Orn. Expl. Kamtsch. 1885, 177.—A. O. U. Check List, 1886, No. 129.—RIDGW. Man. N. Am. B. 1887, 89.

HAB. Whole of North America, breeding from northern border of United States northward.

SP. CHAR. *Adult male:* Head and upper half (or more) of the neck deep black, the elongated feathers of the pileum and nape distinctly, other portions faintly, glossed with greenish; whole back and innermost scapulars deep black; rump, upper tail-coverts, and tail, plain cinereous; sides of the crissum (anteriorly) and femoral region, whitish, narrowly barred with slate-color; primary-coverts, primaries, and outer secondaries, plain blackish dusky. Remainder of the plumage fine light salmon-buff in life, fading to buffy white in dried skins; innermost secondaries narrowly skirted with black; base of the greater coverts deep black, forming a distinct bar about half way across the wing; anterior border of the wing dusky grayish or blackish. Bill deep vermilion-red, the culmen and nail black; feet deep red; iris carmine. *Adult female:* Head and upper half of the neck reddish cinnamon, the pileum and occipital crest (the latter much longer than in the male) more brown, the lores grayish; chin, throat, and malar region, white; upper parts, sides, and flanks bluish gray, the innermost secondaries white, the exposed portion of the lower greater coverts white, tipped with dusky; outermost secondaries, primary coverts, and primaries, uniform slate-color. Lower parts, except laterally, pale creamy salmon-color, fading to nearly white in dried specimens, the feathers of the chest ash-gray beneath the surface. Bill, eyes, and feet, as in the male, but less brilliant in color.

Downy Young. Upper half of the head, with nape, reddish brown, more reddish on the nape, where encroaching on the sides of the neck; remaining upper parts hair-brown, or grayish umber, relieved by four white spots, one on the posterior border of each wing, and one on each side the rump; lower parts white; a stripe on the lower half of the lores, running backward beneath the eye, white; below this a narrower stripe of deep brown, from the rictus to the auricular region; a wide stripe, occupying the upper half of the lores, from the bill to the eye, blackish brown, this separated from the umber of the forehead by a very indistinct streak of brownish white or pale brown.*

Adult male. Total length, about 27 inches, extent, 36; wing, 10.50–11.25; culmen, 1.90–2.20; tarsus, 1.90–2.00; middle toe, 2.40–2.50. *Adult female.* Total length, about 24 inches, extent, 34; wing, 9.60–9.75; culmen, 1.80–2.00; tarsus, 1.85–1.90; middle toe, 2.25–2.40.

* Described from No. 5,783, Bridger's Pass, Rocky Mountains, Aug. 13, 1856; W. S. Wood. Distinguishable with certainty from the young of *M. serrator* by the different position of the nostril.

Apparently the only difference of coloration between this species, and the European *M. merganser*, is that adult males have the black at the base of the greater wing-coverts exposed, so as to form a very distinct band about half way across the wing, while those of the latter have this black entirely concealed by the overlying middle coverts. There is, however, a difference in the proportions of the bill in the two forms which seems to be of specific importance. In the females, this difference in the bill is apparently the only obvious distinguishing character.

The American Merganser, more commonly known as the Sheldrake, Fish Duck, or Saw-bill, winters from Illinois and other states in the same latitude southward, and breeds from Iowa, Minnesota, etc., north to the Arctic districts. Formerly it nested in Pennsylvania and other portions of the more eastern United States, and in the western portions it still breeds very much farther south than it is known to do on the eastern side of the Mississippi, Dr. Mearns having found it nesting along various mountain streams which are tributary to the Verdi and Salt Rivers in Arizona.

The Merganser feeds chiefly on fish, and for this reason its flesh is rank and unpalatable. Hearne says that it devours its food in such quantities that it is frequently obliged to disgorge several times before it can rise from the water, and that it can swallow fishes six or seven inches in length.

Its nest, like that of many other ducks, is usually placed in cavities of trees.

Merganser serrator (Linn.)

RED-BREASTED MERGANSER.

Popular synonyms. Red-breasted Goosander or Sheldrake; Gar-bill; Sea-Robin, etc.

Mergus serrator Linn. S. N. ed. 10, i, 1758, 129; ed. 12, i, 1766, 208.—Wils. Am. Orn. viii, 1814, 81, pl. 69.—Sw. & Rich. F. B.-A. ii, 1831, 462.—Nutt. Man. ii, 1834, 463.—Aud. Orn. Biog. v, 1839, 92, pl. 401; Synop. 1839, 298; B. Am. vi, 1843, 395, pl. 412.—Baird, B. N. Am. 1858, 814; Cat. N. Am. B. 1859, No. 612.—Coues, Key, 1872, 296; Check List, 1873, No. 522; 2d ed. 1882, No. 744; B. N. W. 1874, 584.—Hensh. Zoöl. Wheeler's Exp. 1875, 484.—Ridgw. Orn. 40th Par. 1877, 627; Nom. N. Am. B. 1881, No. 637—B. B. & R. Water B. N. Am. ii, 1884, 116.

Merganser serrator Schäff. Mus. Orn. 1789, 66.—A. O. U. Check List, 1886, No. 130.—Ridgw. Man. N. Am. B. 1887, 89.

Mergus cristatus Brünn. Orn. Bor. 1764, 23.

Mergus niger Gmel. S. N. i., pt. ii, 1788, 546.

Mergus leucomelas Gmel. tom. cit.

HAB. Northern portions of northern hemisphere; in America migrating south, in winter, throughout the United States.

SP. CHAR. *Adult male:* Head dull greenish black, duller and more brownish on the forehead and throat, the crest faintly glossed with purplish; neck and sides of the chest pale fawn-color or dull buff, indistinctly streaked with black, the streaks being on the edges of the feathers; a white collar round the upper part of the neck, just below the black. Lower parts pure creamy white, the sides and flanks undulated with narrow zigzag bars of black. Back and scapulars uniform black; shoulders overhung by a tuft of broad feathers, broadly margined with black, the central space being white. Anterior and outermost lesser wing-coverts dark slate-gray, darker centrally; posterior lesser coverts and middle coverts wholly white; greater coverts with the terminal half white, the basal half black, partly exposed, thus forming a narrow band or bar across the wing; two innermost tertials wholly black, the rest white, edged with black; innermost secondaries entirely white; outer secondaries, primary-coverts, and primaries black. Rump and upper tail-coverts dark ash-gray with black shafts, centrally, finely mottled laterally with white-and-black zigzags. Tail slate-gray, with black shafts. Bill deep carmine, the culmen black, the nail yellowish; iris carmine; feet bright red.* *Adult female:* Head and neck cinnamon-brown, duller or more grayish on the pileum and nape, the crest shorter than in the male; throat and lower parts white, the sides and flanks ash-gray. Upper parts dark ash-gray, the feathers with darker shafts; exposed portion of greater coverts and secondaries white, the base of the latter black, but seldom showing as a narrow bar; primaries black. Bill, eyes, and feet as in the male, but less intense in color. *Young:* Similar to the adult female, but chin and throat pale reddish, instead of pure white, the lower part of the neck and chest, brownish white, with the feathers mouse-gray beneath the surface; black at base of the secondaries exposed, forming a narrow bar between two white areas. *Downy young:* Above, hair-brown, the posterior border of each wing, and a large spot on each side of the rump, yellowish white; lower parts, including the malar region, yellowish white; side of head and neck reddish cinnamon, paler on the lores, which are bordered above by a dusky stripe running backward to the anterior angle of the eye, and below by a dark brown, rather indistinct, rictal stripe; lower eyelid white.

Total length, about 20.00 to 25.00 inches; extent, 32.00 to 35.00; wing, 8.60–9.00; culmen, 2.50; tarsus, 1.80–1.90; middle toe, 2.40.

The Red-breasted Merganser (sadly mis-named, since the breast does not even approach red in color), is a winter resident throughout Illinois and breeds from the northern portion of the State northward. Its habits are so like those of the buff-breasted species (*M. americanus*) as to require no special description here.

GENUS **LOPHODYTES** REICHENBACH.

Lophodytes REICHENB. Syst. Av. 1852, p. ix. Type, *Mergus cucullatus* LINN.

GEN. CHAR. Bill shorter than the head, black; serrations compressed, low, short, inserted obliquely on the edge of the bill. Tail more than half as long as the wings. Tarsus about two thirds as long as the longest toe (with claw). Head with a full, semicircular, compressed crest of hair-like feathers.

* Two adult males received at the National Museum from Wood's Holl, Mass., April 14, 1886, had the soft parts colored as follows: Lower mandible and feet rich scarlet-lake, the webs of the latter brownish, becoming nearly black on the median portion; upper mandible blackish brown, becoming dull red along edges. Total length, before skinning, 23.50 and 24 inches respectively.

The genus *Lophodytes* is quite distinct from *Merganser* in the possession of the above characters. The bill is also much more depressed terminally, and, in proportion to its length, deeper through the base. The nostrils are situated far back, as in *M. serrator*. But one species is known, unless the *Mergus octosetaceus* of Vieillot, a South American bird, which we have not seen, be referable to this genus rather than to *Mergus*.

Lophodytes cucullatus (Linn.)

HOODED MERGANSER.

Popular synonyms. Hooded Sheldrake; Fan-crest; Round-crest; Pickaxe Sheldrake; Wood Sheldrake; Wood Duck; Swamp Sheldrake; Pond Sheldrake; Cock Robin Duck; Hairy-head; Snowl (Maryland); Moss-head; Tow-head; Tadpole, etc., etc.

Mergus cucullatus Linn. S. N. ed, 10, i, 1758, 129; ed. 12, i, 1766, 207.—Wils. Am. Orn. viii, 1814, pl. lxix, fig, 1.—Sw. & Rich. F. B.-A. ii, 1831, 463.—Nutt. Man. ii, 1834, 465—Aud. Orn. Biog. iii, 1835, 246, pl. 233; Synop. 1839, 299; B. Am. vi, 1843, 402, pl. 413.—Coues, Key, 1872, 296; Check List, 1873, No. 523; 2d ed. 1882, No. 745; B. N. W. 1874, 581.—Hensh. Zoöl. Wheeler's Exp. 1875, 484.

Lophodytes cucullatus Reichenb. Syst. Av. 1852, p. ix.—Baird, B. N. Am. 1858, 816; Cat. N. Am. B. 1859, No. 613.—Ridgw. Orn. 40th Par. 1877, 627; Nom. N. Am. B. 1881, No. 638; Man. N. Am. B. 1887, 89.—B. B. & R. Water B. N. Am. ii, 1884, 121.—A. O. U. Check List, 1886, No. 131.

Hab. All of North America, south to Mexico and Cuba, north to Alaska, and accidentally to Greenland; breeds nearly throughout its range; Bermudas in autumn; casual in Europe.

Sp. Char. *Adult male:* Head, neck, back, and scapulars black; crest chiefly pure white, but bordered by a distinct "rim" of black; forehead, and feathers round base of the bill, dark fuliginous, but this blending insensibly into the deep black. Wing-coverts dark gray, lighter and more ashy posteriorly; greater coverts broadly tipped with white, the base black, this exposed sufficiently to show a distinct band; inner secondaries with their exposed surface (in closed wing) white, the basal portion black, showing narrowly beyond the end of the greater coverts; tertials with a central stripe of white. Primaries, primary coverts, rump, upper tail-coverts, and tail brownish dusky. Sides of the breast crossed by two black crescents, projecting from the black of the back, these interdigitating with two white ones, the last crescent being black. Sides and flanks rusty cinnamon (more grayish anteriorly), narrowly undulated with black; remaining lower parts white, the posterior part of the crissum mottled with grayish brown. Bill deep black; iris bright yellow; legs and feet yellowish brown, the claws dusky. *Adult female:* Head, neck, chest, and upper parts generally, grayish brown, darker above, the crest reddish hair-brown, or dull cinnamon, smaller and of looser texture than in the male; chin, upper part of the throat, and lower parts, except sides, and posterior part of the crissum, white; middle feathers of the greater wing-coverts tipped with white; innermost secondaries with their exposed surface white, except at the base. Maxilla black, edged with orange; mandible orange; iris hazel; feet dusky. *Young:* Similar to the adult female, but crest rudimentary, or wanting, the sides and posterior part of the crissum more distinctly brown. *Downy young:* Above, deep hair-brown, darkest on the back and rump;

posterior border of the arm-wing, a small spot on each side of the back (nearly concealed by the closed wing), and a larger one on each side of the rump grayish white. Lower half of the head (from about on a line with the eye) brownish buff, paler on the chin and throat; chest light dingy brownish; remaining lower parts dingy white, the sides brown, like the upper parts.

Total length, about 17.50–19.00 inches; extent, 24.00–26.00; wing, 7.50–7.90; culmen, 1.50; tarsus, 1.25–1.30; middle toe, 1.90–1.95.

The Hooded Merganser is a common summer resident in Illinois, inhabiting wooded swamps and the dense timber along streams, where it may be seen perching high in the lofty trees, in knot-holes and other cavities of which it makes its nest.

ORDER STEGANOPODES.—THE TOTIPALMATE SWIMMERS.

CHARACTERS. Hind toe lengthened, united by a web with the inner toe; bill longer than the head, with sharp cutting edges, and usually with a curved maxillary unguis or terminal hook (wanting in *Anhingidæ* and *Phaëthontidæ*). Throat usually with a more or less distensible pouch of naked skin, situated between the mandibular rami (wanting in *Phaëthontidæ*). Nostrils obsolete (except in *Phaëthontidæ*).

Leaving out the genus *Phaëthon* which, if truly belonging to this order, is at least an aberrant form, the *Steganopodes* constitute a very natural group of birds, the main characters of which are as given above. So far as its external appearance goes, *Phaëthon* is very similar to the larger Terns, the most obvious difference being in the character of the feet.

Following are the characters of the several families belonging to this order, the names of those represented in the Illinois fauna being in heavy-faced type, the others in italics:

A. Bill terminated by a conspicuous, strongly curved hook.

a. Tarsus excessively short, scarcely equal to the hallux, including its claw.

1. *Fregatidæ*. Wings and tail excessively elongated, the latter deeply forked; middle toe much longer than the outer, its claw flattened and pectinated on the inner edge; webs very small, occupying less than half the space between the toes.

b. Tarsus moderately lengthened, much longer than the hallux, including its claw, (sometimes more than twice as long).

2. **Pelecaniidæ**. Bill excessively elongated (much longer than the tarsus and middle toe), greatly depressed, the gular pouch very large, and greatly distensible. Middle toe longer than the outer.

3. **Phalacrocoracidæ**. Bill moderately elongated, or rather short (shorter than the middle toe), compressed; gular pouch small, scarcely distensible. Outer toe much longer than the middle.

B. Bill tapering to the point, which is without a terminal hook or unguis (very faintly indicated in *Sulidæ*).

a. Nostrils obliterated; outer and middle toes nearly equal in length, and much longer than the inner; lores, orbital region, lower jaw, chin, and throat, naked.

4. **Anhingidæ**. Bill slender, heron-like, the outlines nearly straight (the culmen perfectly so); head very small, neck extremely long and slender. Tail long and fan-shaped (nearly as long as the wing), rounded, the feathers very broad, the middle rectrices transversely corrugated in the adult.

5. *Sulidæ*. Bill very thick through the base, but tapering rapidly to the tip, which is very slightly curved, with the maxillary unguis faintly indicated. Tail short (about half the wing), cuneate, the feathers narrowed toward the end.

5. Nostrils distinct (as in the *Laridæ*); lateral toes nearly equal, and nearly as long as the middle; whole head normally feathered.

6. *Phaëthontidæ*. Bill conical, much compressed, the culmen curved; maxillary tomium very concave. Tail short, graduated, the central pair of rectrices linear and excessively elongated.

Family PELECANIDÆ.—The Pelicans.

Characters. Bill greatly elongated and excessively depressed, the terminal unguis very prominent and strongly hooked; gular pouch exceedingly large and greatly distensible; lores and orbital region—sometimes other parts of the head also—naked. Toes fully webbed, the outer almost as long as the middle, the inner much shorter. Tail very short, nearly even, or slightly rounded. Size usually very large.

The Pelicans include about ten species, which are found mostly in the warmer parts of the world, although two of them—the common American *P. erythrorhynchos* and the Palæarctic *P. crispus*—extend in summer to high northern latitudes. As may be seen from the synonymy of the genus *Pelecanus*, these birds have been divided into several genera by authors; but each species possesses so many peculiarities of external structure that it is doubtful whether the differences between the supposed genera are of more than subgeneric importance.

Genus PELECANUS Linnæus.

Pelecanus Linn. S. N. ed. 10, i, 1758, 132; ed 12, i, 1766, 215. Type, *P. onocrotalus* Linn.
Onocrotalus Briss. Orn. vi, 1760, 519. Type, *Pelecanus onocrotalus* Linn.
Cyrtopelicanus Reich. Syst. Av. 1853, p. vii. Type, *Pelecanus erythrorhynchos* Gmel.
Leptopelicanus Reich. l. c. Type, *Pelecanus fuscus* Linn.
Catoptropelicanus Reich. l. c. Type, *Pelecanus conspicillatus* Temm.

The characters of this genus being the same as those given above for the Family *Pelecanidæ*, it is unnecessary to repeat them here. It is possible, however, that the genus as here used in a comprehensive sense should be subdivided, as indicated by the above synonymy.

The species which occur in Illinois may be thus distinguished:

A. Lower jaw densely feathered to the base of the mandible. Tail-feathers 24. (Subgenus *Cyrtopelicanus*.)

1. **P. erythrorhynchos.** Color white, the primaries blackish. Bill and feet yellowish, deepening to red in the breeding-season. Wing, 22.00–25.25 inches; culmen, 11.39–13.85.

B. Lower jaw wholly naked. Tail-feathers 22. (Subgenus *Leptopelicanus*.)

2. **P. fuscus.** Prevailing color dusky, the upper parts silvery-striped in adults, grayish brown in the young; bill dull grayish, or purplish brown, stained with red toward end (in breeding season); pouch greenish brown, grayish, or dusky. Wing, 19.00–21.00 inches; culmen, 9.40–12.20.

Pelecanus erythrorhynchos Gmel.

AMERICAN WHITE PELICAN.

Popular synonym. Rough-billed Pelican.

Pelecanus erythrorhynchos GMEL. S. N. i, pt. ii, 1788, 571.—BAIRD, B. N. Am. 1858, 868; Cat N. Am. B. 1859, No. 615.—ELLIOT, P. Z. S. 1869, 588 (monographic).—RIDGW. Orn. 40th Par. 1877, 627 (habits, etc.); Nom. N. Am. B. 1881, 640; Man N. Am. B. 1887, 82.—B B. & R. Water B. N. Am. ii, 1884, 133.—A. O. U. Check List, 1886, No. 125.

Pelecanus trachyrhynchus LATH. Ind. Orn. ii, 1790, 884.—COUES, Key 1872, 300; Check List, 1873, No. 526; 2d ed. 1882, No. 748; B. N.W. 1874, 586.—BENDIRE, Proc. Bost. Soc. N. H. 1877, 146 (habits, nest and eggs, etc.)

Pelecanus onocrotalus ("a variety") FORST. Philos. Trans. lxii, 1772, 419.

Pelecanus onocrotalus BONAP. Synop. 1828, 400 (*nec* LINN.).—SW. & RICH. F. B.-A. ii. 1831, 472.— UTT. Man. ii, 1834, 471.

Pelecanus thagus STEPH. Gen Zoöl. xiii, 1826, 117 (Mexico; *nec* MOLINA).

Pelecanus hernandezii WAGL. Isis, 1832, 1233 (Mexico).

Pelecanus americanus AUD. Orn. Biog. iv, 1838, 88, pl. 311; Synop. 1839, 309, B. Am. vii, 1844, 20, pl. 422.

Pelecanus occipitalis RIDGW. Am. Sportsman, iv, 1874, 297 (Nevada).

HAB. The whole of North America, north in the interior to about 61°, south to Mexico and Central America in winter; now rare or accidental along the Atlantic coast north of Florida.

SP. CHAR. Tail-feathers 24; malar region completely feathered; color chiefly white; bill, pouch, and feet yellowish or reddish. *Adult, nuptial plumage:* Culmen with a narrow median horny excresence, situated a little anterior to the middle, the upper outline more or less convex, its fibres obliquely vertical, its size and exact shape variable. Plumage white, sometimes tinged with pale pinkish, the narrow lesser wing-coverts and jugular plumes straw-yellow or (rarely?) purplish buff; primaries dull black, their shafts white toward the base; secondaries dusky, both webs edged with grayish white. Upper part of the nape with a pendent crest of long, narrow, silky feathers of a pure white or delicate straw-color. Bill chiefly orange, paler on the culmen, the nails and edges of the maxilla and mandible more reddish; mandible deeper red than the maxilla, growing almost brick-red basally; pouch dirty whitish anteriorly, where suffused with blackish, passing successively through yellow and orange into intense dragon's-blood-red, or brick-red, at the base; lower edge of the mandible sometimes blackish, and side of the mandible sometimes marked, nearly opposite the maxillary crest, with a somewhat quadrate black spot; bare skin of the lores and orbital region rich orange-yellow; eyelids dark reddish; iris pearl-white[1]; legs and feet intense orange-red. *Adult, post-nuptial plumage* (=*P. occipitalis* RIDGW.): Similar to the above, but maxillary excrescence wanting (having been cast), and the nuchal crest replaced by a patch of brownish gray. *Adult in fall and winter:* Similar to the last, but no grayish patch on the occiput (crest also absent), the bill and feet clear yellow. *Young:* Similar to the winter adult, but lesser wing-coverts brownish gray centrally, pileum similarly marked; jugular feathers short and broad, and pure white, like the other feathers of the lower surface; bill, pouch, and feet pale yellow.

Total length about 53.50–64.00 inches; extent, 7.50–9.00 feet; wing, 22.25–25.25 inches; culmen, 11.30–15.00; tarsus, 4.30–4.65; middle toe, 3.70–4.25.[2] Weight of adult, about 17 pounds.

[1] The iris is said to be sometimes hazel.

[2] The average of a series of eight adult examples is as follows: Wing, 23.55 inches; culmen, 12.62; tarsus, 4.50; middle toe, 3.98.

Individual variation, both in size and in the details of coloration, is very considerable in this species. Most descriptions of the perfectly adult bird say that the plumage is tinged with peach-blossom pink; but in only a single example among the very large number examined by me (including both skins and freshly killed birds) was the faintest trace of this color visible, and that confined to a few feathers of the back. The straw-yellow color of the narrow jugular feathers and lesser wing-coverts, however, seems to be always a characteristic of the adult birds, both in winter and summer, though much paler in the former season. The black along the lower edge of the mandible and the squarish spot on its side are not infrequently entirely absent. The maxillary excrescence varies greatly both in size and shape. Frequently it consists of a single piece, nearly as high as long, its vertical outlines almost parallel, and the upper outline quite regularly convex, the largest specimen seen being about three inches high, by as many in length. More frequently, however, it is very irregular in shape, usually less elevated, and not infrequently with ragged anterior, or even posterior, continuations. This excrescence, which is assumed gradually in the spring, reaches its perfect development in the pairing season, and is dropped before or soon after the young are hatched; simultaneously with the shedding of this appendage the nuchal crest falls off, and in its place a patch of short brownish gray feathers appears; this disappears with the fall moult, when the occiput is entirely unadorned, there being neither crest nor colored patch.

The White Pelican passes through Illinois in its northward journey from the southern waters to its breeding grounds in April, and returns to its winter quarters during the latter half of September and first half of October. Its breeding places are scattered, localities which are sufficiently secluded being now "few and far between." It is said to breed in portions of Minnesota, as it does in many places farther to the west and north, and there are reasons for supposing that it may breed in Florida and Texas, as well as in intermediate portions of the Gulf coast.

In a very excellent account of the feeding habits of this bird, Col. N. S. Goss observes that naturalists who "have not seen the White Pelicans upon their feeding grounds, have without doubt read Audubon's interesting description of the manner in

which the birds unite and drive the fishes into shallow water, where they can catch them, which they cannot well do in deep water, as their skins are honeycombed with air cells that buoy them up like cork, and prevent their diving, and they do not plunge for their food when upon the wing, like their cousins, the Brown Pelicans, and therefore have to adopt fishing habits suited to shallow waters. I have often noticed the birds in flocks, in pairs, or alone, swimming on the water with partially opened wings, and head drawn down and back, the bill just clearing the water, ready to strike and gobble up the prey within their reach; when so fishing, if they ran into a shoal of minnows, they would stretch out their necks, drop their heads upon the water, and with open mouths and extended pouches scoop up the tiny fry. Their favorite time for fishing on the seashore is during the incoming tide, as with it come the small fishes to feed upon the insects caught in the rise, and upon the low forms of life in the drift, as it washes shoreward, the larger fishes following in their wake, each from the smallest to the largest eagerly engaged in taking life in order to sustain life. All sea-birds know this and the time of its coming well, and the White Pelicans that have been patiently waiting in line along the beach, quietly move into the water, and glide smoothly out, so as not to frighten the life beneath, and, at a suitable distance from the shore, form into line in accordance with the sinuosities of the beach, each facing shoreward and awaiting their leader's signal to start. When this is given, all is commotion; the birds, rapidly striking the water with their wings, throwing it high above them, and plunging their heads in and out, fairly make the water foam, as they move in an almost unbroken line, filling their pouches as they go. When satisfied with their catch, they wade and waddle into line again upon the beach, where they remain to rest, standing or sitting, as suits them best, until they have leisurely swallowed the fishes in their nets; then, if undisturbed, they generally rise in a flock, and circle for a long time high in air. * * * Several years ago, in the month of September, I had the pleasure of observing a small flock of the birds fishing in the Neosho River, Kansas. When late at evening they were forced by tired wings to stop in their southward flight, the place selected was in still deep water, at the head of a fall, or rapids, in the stream,

where the water for some fifteen rods, and with a depth of about six inches, was rippling and dashing over the rocks, a natural feeding ground for the fishes. The birds, after first bathing and dressing their feathers, giving particular attention to their primaries, without any unity of action, as hunger moved them, floated down over the rapids, picking up the fishes here and there, until the still water below was reached, when they would rise and fly back, to float down again, leisurely repeating this mode of fishing until it was quite dark."

Captain Charles E. Bendire, U. S. A., while stationed at Camp Harney, enjoyed unusual opportunities for observing the breeding-habits of this species in eastern Oregon. He found it a very common summer resident in that region, making its appearance early in spring, before the lakes are free from ice, and moving south early in November. It bred in large numbers on several of the small islands in the eastern part of Lake Malheur, beginning as early as April 12, the nest being a mere depression scraped in the sand. The number of eggs in a nest was usually two, occasionally three, and in rare instances five were found in the same nest; but these were perhaps the product of more than one female. It bred in communities, the nests being about a yard apart. Eggs placed under a hen were hatched out in twenty-nine days.

The eggs of this species have a rough surface, on account of the very uneven thickness of the chalky exterior coat, which has a tendency to form irregular corrugations and other inequalities of surface. The normal color is chalky white, but this is often discolored by conspicuous blood-stains. Their dimensions average about 3.45x2.30 inches.

Pelecanus fuscus Linn.

BROWN PELICAN.

Popular synonyms. Pelecano; Alcatráz (Mexico).

Pelecanus fuscus Linn. S. N. ed. 12, i, 1766, 215.—Nutt Man. ii, 1834, 476.—Aud. Orn. Biog. iii, 1835, 376; v. 1839, 212; Synop. 1839, 212; B. Am. vii, 1844, 32, pls. 423, 424.—Lawr. in Baird's B. N. Am. 1858, 870.—Baird, Cat. B. N. Am. 1859, No. 616.—Coues, Key, 1872, 300; Check List, 1873, No. 527; 2d ed. 1882, No. 749.—Ridgw. Nom. N. Am. B. 1881, No. 641; Man. N. Am. B. 1887, 82.—B. B. & R. Water B. N. Am. ii, 1884, 139.—A. O. U Check List, 1886, No. 126.

Leptopelicanus fuscus Reichenb. Syst. Av. 1852, p. vii.

Onocrotalus fuscus Bonap. Consp. ii, 1856, 163.

HAB. Atlantic coast of tropical and subtropical America, north in the United States to North Carolina. Accidental in Illinois (C. K. WORTHEN; *cf. Bull. Nutt. Orn. Club*, January, 1880, p. 31).

SP. CHAR. Tail-feathers 22. Malar region entirely naked; color silvery gray above and dusky beneath in the adult, brown or grayish above and white beneath in the young; bill grayish; pouch and feet dusky. *Adult in full breeding-plumage:* Head, and feathers of the neck bordering the base of the gular pouch, white, the forehead sometimes tinged with straw-yellow; rest of the neck rich chestnut or seal-brown, the upper part of the nape with a narrow crest of lighter reddish. Upper parts nearly uniform velvety light ash-gray, the feathers of the upper part of the back, the smaller lesser wing-coverts, the rump, and upper tail-coverts edged with dark snuff-brown. Lower parts uniform dark brownish gray, the feathers of the sides, flanks, and crissum streaked centrally with silvery white. Under wing-coverts and exterior border of wing, snuff-brown, streaked with silvery white. "Bill grayish white, tinged with brown, and marked with irregular spots of pale carmine; upper mandible dusky toward the end, lower blackish from the middle to near the end; bare space between the bill and eye deep blue; eyelids pink; iris white; feet black; gular pouch greenish black, the ridges of its wrinkles lighter" (AUDUBON). *Adult in winter:* Similar to the above, but head and neck wholly white, the head and lower part of the foreneck usually tinged with straw-yellow. *Young, first plumage:* Head and neck light brownish gray, lighter on the nape, the tips of the feathers paler; back, scapulars, and wing-coverts dull brown, the feathers tipped with light fulvous; secondaries, tertials, and rectrices silvery gray, edged with paler; rump and upper tail-coverts similar. Lower parts white, the sides, flanks, and crissum tinged with brownish gray. "Bill grayish blue, its edges and unguis grayish yellow; gular pouch dull grayish blue; iris brownish yellow; bare space around the eye dusky bluish; feet and claws dull lead-color" (AUDUBON). *Young in autumn:* Similar to the adult, but head and neck dull light ash-gray, the feathers bordering the base of the gular pouch white, the occiput dark plumbeous or slaty, the feathers streaked centrally, or tipped, with white. Upper parts less uniform and more tinged with brownish than in the adult.

Total length, about 44.00 to 56.00 inches; extent, 6.50 to 7.75 feet; wing, 19.00–21.00 inches; culmen, 9.40–12.20; tarsus, 2.60–3.05; middle toe, 3.40–3.95. (Average of seven specimens, 19.79, 11.12, 2.84, 3.70.) Weight, about 7–8 lbs.

It was supposed by Audubon and other earlier writers that the white-necked plumage, described above as the winter dress of both sexes, represented the peculiar garb of the female. It is now known, howevever, that both sexes assume this plumage after the breeding season, there being at no time any obvious difference in the colors of the plumage between the male and female. (*Cf.* SCLATER, *Proc. Zoöl. Soc. Lond.*, 1868, p. 268.)

The Brown Pelican is barely entitled to a place in the list of Illinois birds, on account of a single specimen having been seen (not taken) by Mr. C. K. Worthen, near Warsaw (see *Bull. Nutt. Orn. Club*, V., 1880, p. 31). It is a tropical and subtropical species, and, unlike the White Pelican, inhabits exclusively the salt-water seas, bays, and estuaries, its occurence inland being purely fortuitous.

In many of its habits it is very different from the White Pelican, its manner of feeding being conspicuously so; for, while the latter collects in companies which, swimming, drive their prey

before them into shallow water and then scoop it into their capacious pouches, the Brown Pelicans soar above the water, into which they plunge from varying heights, in the manner of a Fish Hawk, only their prey is seized by the bill instead of the feet.

"Birds of this species are said to feed chiefly during the rising tide, wandering in extended trains along the shore, and diving occasionally, one after the other, when they meet with a shoal of fish. They are very regular in their motions when flying, keeping at uniform distances, alternately flapping and sailing, in imitation of their leader. They usually fly very close to the surface of the water, and then merely plunge obliquely, holding the bill so as to scoop up the small fish sideways; then, closing the wings, they hold up the head with the bill down, so as to allow the water to run out. This permits the escape of some of the fish, and gives the parasitic gull a chance to obtain a share of the plunder, without in the least offending the dignified pelican. Sometimes this bird dives from a considerable height, plunging downward with a spiral motion, although scarcely ever going beneath the surface, but immediately raising its bill from the water—usually with a stock of young fish in it. As a general rule this pelican does not catch fish more than six inches long; but occasionally one weighing more than two pounds and a half may be found in its pouch. Like most fish-eaters, the pelican is a stupid bird, seeming to have no ideas beyond the supplying of its immediate wants." (*Water Birds of North America.*)

Not only does the Brown Pelican, when so inclined, perch easily and gracefully upon the branches of trees, but it frequently also builds its nest on the tops of the mangroves which line the shores of its habitat. The eggs are like those of the White Pelican, except in size, their dimensions averaging only about 3.01x1.95 inches.

FAMILY PHALACROCORACIDÆ.—THE CORMORANTS.

CHARACTERS. Bill comparatively small (shorter than middle toe), variable as to outlines, but maxillary unguis always prominent and strongly hooked; nostrils obliterated; lores, orbital region, lower jaw, chin, and upper part of throat naked. Middle toe longer than, or about equal to, tarsus, the outer toe much longer, and the inner toe about as much shorter. Wings rather short, concave beneath, reaching but little, if any, beyond base of the tail; the latter variable as to length, usually rounded or graduated, composed of twelve to fourteen stiff feathers with very rigid shafts, which are exposed almost to the extreme base, on account of the slight development of the tail-coverts. Plumage very compact, usually dark colored and glossy, but lower parts sometimes, in part at least, whitish.

The Cormorants are funereal-looking, long-necked water birds, which have a habit of perching in rows upon dead trees, or upon rocks by the sea-shore, or swimming in loon-like fashion upon the water.

Only one genus is recognized, but it is a question whether this should not be subdivided.

GENUS PHALACROCORAX BRISSON.

Phalacrocorax BRISS. Orn. vi, 1760, 511. Type, *Pelecanus carbo* LINN.
"*Carbo* LACEP. Mém. de l' Inst. 1800–1801."
Urile BONAP. Consp. ii, 1856, 175. Type, *Pelecanus urile* GMEL.
Hypoleucus REICH. Syst. Av. 1853, p. vii. Type, *Pelecanus varius* GMEL.
Stictocarbo BONAP. "1854"; Consp. ii, 1856, 174. Type, *Pelecanus punctatus* GMEL.
Microcarbo BONAP. Type, *Phalacrocorax pygmæus* PALL.
Compsohalieus RIDGW. in B. B. & R. Water B. N. Am. ii, 1884, 145. Type, *Carbo penicillatus* BRANDT.

GEN. CHAR. Same as those of the family *Phalacrocoracidæ* (see above).

The following species are known to occur in Illinois:

A. Larger (wing more than 11.00 inches); adults without white round base of gular pouch; the nuptial plumage with superciliary tufts.
1. **P. dilophus.** Larger.
2. **P. dilophus floridanus.** Smaller.

B. Smaller (wing less than 10.50 inches); adults with white line around base of gular pouch, but without superciliary tufts.
3. **P. mexicanus.**

Phalacrocorax dilophus (Swains.)

DOUBLE-CRESTED CORMORANT.

Popular synonyms. Black Loon; Nigger Goose (coast of Virginia); Black Swan (Nevada).

Pelecanus (Carbo) dilophus Sw. & Rich. F. B.-A. ii, 1831, 473.

Phalacrocorax dilophus Nutt. Man. ii, 1834, 483.—Aud. Orn. Biog. iii, 1835, 420; v, 1839, 629, pl. 257; Synop. 1839, 302; B. Am. vi, 1844, 423, pl. 416.—Ridgw. Nom. N. Am, B. 1881, No. 643; Man. N. Am. B. 1887, 78.—Coues, 2d Check List, 1882, No. 751.—B. B. & R. Water B. N. Am. ii, 1884, 149.—A. O. U. Check List, 1886, No. 120.

Graculus dilophus Gray, Gen. B. iii, 1849.—Baird, B. N. Am. 1858, 877; Cat. N. Am. B. 1859, No. 623.—Coues, Key, 1872, 305; Check List, 1873, No. 530.

Graculus dilophus a. *dilophus* Coues, B. N. W. 1874, 587.

Hab. Northeastern North America, breeding from northern United States northward; south in winter to the Gulf coast.

Sp. Char. Basal outline of the gular pouch extending straight across the throat or projecting slightly back along the median line. *Adult, in full breeding plumage:* Head, neck, rump, and entire lower parts, glossy black, with a faint luster of dull bluish green; back, scapulars, and wings, dull grayish brown, each feather conspicuously and broadly bordered with black. A tuft of narrow, lengthened, curved feathers on each side the crown, springing from behind and above the eye, these feathers either wholly black (in eastern specimens), mixed black and white (in specimens from the interior), or wholly pure white (in Pacific coast examples); neck sometimes, but rarely, with a few scattered white filamentous feathers. Maxilla black, mottled with grayish or dull yellowish along the sides; mandible yellowish or pale bluish, mottled with dusky; loral region and gular sac deep orange; eyelids and whole interior of the mouth bright cobalt-blue, the former sometimes dotted with white; iris bright grass-green; legs and feet deep black.* *Adult in winter:* Similar to the above, but tufts of the head wanting, and the bare skin of the lores, gular pouch, etc., deep yellow instead of orange, and the bluish of the mouth and eyelids absent. *Young, first plumage:* Head and neck grayish brown, lighter next to the gular sac, darker on the crown and nape; back, scapulars, and wings, dull brownish gray, the feathers bordered with dusky brown; rump dusky brown; primaries and tail dull grayish black; lower parts light fawn-color, darker on the sides, anal-region, and crissum. Bill dull brownish yellow, nearly black on the culmen; gular sac deep chrome-yellow; iris greenish gray; legs and feet deep black. *Young, in winter:* Similar to the above, but throat, chest, and breast paler, sometimes quite white.

Total length, about 29 to 33.60 inches; extent, 45 to 55; wing, 12.00–13.00 (average 12.50); tail, 6.50–7.80 (7.15); culmen, 2.00–2.45 (2.25).

The Double-crested Cormorant is a transient visitor in Illinois, arriving from the North in September or October and returning from its winter quarters in the Gulf States and Lower Mississippi Valley in March or April, according to the latitude. It doubtless occasionally remains during mild winters in the southern portion of the State.

"Like the common Black Cormorant (*P. carbo*), this bird lives entirely on fish, which it catches by pursuing them under water,

* Audubon gives the fresh colors as follows: "*Adult male, at commencement of the breeding season:* Upper mandible dusky, along the edges grayish-yellow; lower yellow, irregularly marked with dusky toward the edges. Iris bright green, margin of eyelids, bare space on the head, and gular sac, rich orange. Feet and claws black."

diving only from the surface, and never when flying. Its power of swimming is very great, and it can remain under the water for a long time, so that when only wounded its pursuit in a boat is useless. Individuals of this species occasionally seem to prefer inland waters during the summer, while others breed on the islands at sea and along the large rivers. They may often be seen sitting on snags or on rocks; but are so shy that they cannot be approached in a boat, although in flying they often pass very near the hunter, and thus afford an opportunity for a shot. In winter they associate in small numbers with the more marine species. This seems to be an altogether silent species. In flying it proceeds by constant and laborious flappings, and moves with great rapidity. Occasionally it sails for a short distance." (*Water B. N. Am.*)

Phalacrocorax dilophus floridanus (Aud.)

FLORIDA CORMORANT.

Popular synonyms. Southern Double-crested Cormorant; Black Loon (Wabash River); Nigger Goose (Southern States).

Phalacrocorax floridanus AUD. Orn. Biog. iii, 1835, 387; v, 1839, 632, pl. 251; Synop. 1839, 303; B. Am. vi, 1843, 430, pl. 417.

Graculus floridanus BONAP. Consp. ii, 1856, 172.—LAWR. in Baird's B. N. Am. 1858, 879.—BAIRD, Cat. N. Am. B. 1859, No. 624.

Graculus dilophus, var. *floridanus* COUES, Key, 1872, 303; Check List, 1873, No. 530 *a*.—COBY, B. Bahama I., 1880, 198.

Graculus dilophus, b. *floridanus* COUES, B. N. W. 1874, 587.

Phalacrocorax dilophus floridanus RIDGW. Proc. U. S. Nat. Mus. iii, Aug. 24, 1880, 205; Nom. N. Am. B. 1881, No. 643 *a*; Man. N. Am. B. 1887, 78.—COUES, 2d Check List, 1882, No. 753.—A. O. U. Check List, 1886, No. 120 *a*.

Phalacrocorax dilophus, b. *floridanus* B. B. & R. Water B. N. Am. ii, 1884, 150.

HAB. South Atlantic and Gulf States and lower Mississippi Valley, north, in summer, to Illinois, Iowa, etc.; occasional in Bahamas and Cuba.

SUBSP. CHAR. Exactly like *G. dilophus*, except in size, being smaller. Total length, about 21.25–30.00 inches; wing, 11.20–12.50 (11.75); culmen, 2.00–2.40 (2.17).

The difference between the so-called Florida Cormorant and the true Double-crested Cormorant (*G. dilophus*) being apparently only an average one of size, it is very doubtful whether it should be recognized as a separate race, since it is quite impossible, so far as I have had the opportunity of judging, to detect any differences of coloration. Not having been able to examine a very large series, however, the number of specimens representing the true *G. dilophus* being exceedingly small, I prefer to

keep the two supposed forms separate until more satisfactory material can be compared.

According to Audubon, there is a difference in the coloration of the unfeathered parts of the head, in the breeding season, the Florida Cormorant having the basal margins of the upper mandible bright blue, the lower mandible bright blue "curiously spotted with white," and the margins of the eyelids light blue spotted with white. But as the Cormorants which I shot at Pyramid Lake, Nevada, in May were thus marked with blue, while those shot at Mt. Carmel, Illinois, in the spring were similarly marked, it is probable that the blue eyelids, etc., are characteristic of the nuptial season, and common to all the geographical forms of the species.

The Florida Cormorant, or at least specimens of *G. dilophus* in no wise distinguishable from birds of the same species breeding in Florida, is common in early spring on the Wabash River as far north as Mt. Carmel, and no doubt occurs along other rivers in the southern portion of the State. While I have never actually found it breeding there, I have no doubt that it does so.

Phalacrocorax mexicanus (Brandt).

MEXICAN CORMORANT.

Popular synonym. Sargento (Mexico).

Carbo mexicanus BRANDT, Bull. Sc. Acad. St. Petersb. iii, 1838, 55.—GUNDL. Rep. Fis.-Nat. Cuba, i, 1866, 395; J. f. O. 1875, 401 (Cuba).

Graculus mexicanus BONAP. Consp. ii, 1856, 173.—COUES, Key, 1872, 203; Check List, 1873, No. 531; B. N. W. 1874, 588.—SNOW, Cat. B. Kans. 1873, 12 (Lawrence, Kansas).—RIDGW. Bull. Nutt. Orn. Cl. v, 1880, 31 (Cairo, Illinois).

Phalacrocorax mexicanus BREWER, Proc. Bost. Soc. N. H. vii, 1860, 308 (Cuba).—SCL. & SALV. Nom. Neotr. 1873, 124.—RIDGW. Nom. N. Am. B. 1881, No. 644; Man. N. Am. B. 1887, 79.—COUES, 2d Check List, 1882, No. 754.—B. B. & R. Water B. N. Am. ii, 1884, 155.—A. O. U. Check List, 1886, No. 121.—CORY, B. W. I. 1889, 272, (Cuba).

Phalacrocorax resplendens LEMB. Aves de Cuba, 1850, 119 (= adult; *nec* AUDUBON).

Phalacrocorax townsendii LEMB. Aves de Cuba, 1850, 120 (= young; *nec* AUDUBON).

HAB. Central America, Mexico, Cuba, and southern United States, north in the Mississippi Valley to Kansas and southern Illinois; south to Costa Rica.

SP. CHAR. The smallest American species of the genus. Tail-feathers 12. Bill moderately robust, the unguis arched and strongly hooked, the culmen slightly concave in the middle portion and gently ascending at the base. Bare skin of face extending farthest back on side of head, forming quite an angle behind the rictus; feathers of the throat advancing forward on the median line, the apex sometimes divided or indented by a slight intrusion of the naked skin of the gular pouch. Scapulars and wing-coverts narrow and tapering, almost pointed.

Adult, nuptial plumage. Feathers bordering the gular sac white, forming a more or less distinct transverse line, reaching upward nearly or quite to the eye. Head, neck, rump, and entire lower parts silky brownish black, with a very faint purplish brown gloss in certain lights; back, scapulars, and wing-coverts dark brownish slaty, each feather narrowly bordered with black; primaries slate-black. Tail uniform deep black, including the shafts. Superciliary region, sides of neck, and anal region, ornamented by scattering narrow filamentous white feathers. Bill (in skin) light-colorod, mottled with darker, the culmen dusky; gular sac brownish (dull orange-red in life?); iris green; legs and feet deep black.

Adult, post-nuptial and winter plumage. Similar to the nuptial plumage, but lacking the white filamentous feathers of head, neck, etc.

Young, first plumage. Head, neck and under parts grayish brown, becoming gradually darker (nearly black) on the hind neck, sides, flanks, anal region and under tail-coverts, and whitish on upper part of throat (next to gular pouch); upper parts as in the adult. "Iris green; bill dark fleshy, culmen and upper part of lower mandible dusky; gular sac brownish; feet deep black." (SUMICHRAST, U. S.)

Young, in winter. Similar to first plumage, but throat, foreneck, chest, and breast much lighter colored—sometimes almost white.

Total length, about 23.00–28.75 inches; extent, 38.00–42.75; wing, 9.95–10.40; tail, 6.75–8.30; culmen, 1.70–2.00; tarsus, 1.85–2.10; middle toe, 2.15–2.85.

The Mexican Cormorant is said to be a common resident along the coast of Texas, and doubtless also breeds in portions of the lower Mississippi Valley, specimens having been taken in April near Lawrence and in Mitchell Co., Kansas, and near Cairo, Illinois.*

Its habits are said to be essentially the same as those of the Florida Cormorant, with which it doubtless may easily be confounded when seen at a little distance.

* *Fide* CHAS. K. WORTHEN; see *Bull. Nutt. Orn. Club*, Jan. 1880, p. 31.

Family ANHINGIDÆ.—The Anhingas.

Characters. Bill slender, pointed, compressed, and very heron-like in shape, the culmen and commissure almost straight, the gonys slightly ascending; terminal half of the tomia finely serrated, the serrations directed backward, and forming a series of close-set, sharp-pointed, fine bristly teeth; nostrils obliterated. Head small, neck slender and greatly elongated (nearly as long as the wing); outer toe about as long as the middle, or slightly shorter. Tail very long, fan-shaped, rounded, the feathers widened toward the ends, the outer webs of the intermediæ in fully adult birds transverely corrugated or "fluted."

This singular family consists of but one genus, *Anhinga*, which has a representative in the warmer parts of each of the great divisions of the earth.

Genus ANHINGA Brisson.

Anhinga Briss. Orn. vi, 1760, 476. Type, *Anhinga* Marcgr.,=*Plotus anhinga* Linn.
Plotus Linn. Syst. Nat. ed. 12, i, 1766, 218. Type, *P. anhinga* Linn.

Gen. Char. The same as those of the family (see above).

Only one species of this genus occurs in America. This is represented in Africa by the *A. levaillantii*, Licht.; in India by *A. melanogaster*, Gmel.; and in Australia by *A. novæ-hollandiæ*, Gould. They all closely resemble *A. anhinga*, but are quite distinct.

Anhinga anhinga Linn.

ANHINGA.

Popular synonyms. American Anhinga; Snake Bird; Black-bellied Darter; Darter; Water Crow (mouth of the Mississippi); Water Turkey; Grecian Lady (Florida); Bec à Lancette (Louisiana French).

Plotus anhinga Linn. S. N. ed. 12, i, 1766, 218.—Nutt. Man. ii, 1834, 507.—Bonap. Consp. ii, 1855, 180.—Aud. Orn. Biog. iv, 1838, 136; Synop. 1839, 306; B. Am. vi, 1843, 443, pl. 420.—Lawr. in Baird's B. N. Am. 1858, 883.—Baird, Cat. N. Am. B. 1859, No. 628.—Coues, Key, 1872, 306; Check List, 1873, No. 536; 2d ed. 1882, No. 760.—Ridgw. Nom. N. Am. B. 1881, No. 649.—B. B. & R. Water B. N. Am. ii, 1884, 166.

Anhinga anhinga Stejn. Stand. Nat. Hist. iv, 1885, 193.—A. O. U. Check List, 1886, No. 118.—Ridgw. Man. N. Am. B. 1887, 77.

Plotus melanogaster Wils. Am. Orn. ix, 1824, 79, 82, pl. 74 (not of Gmel.).

HAB. Tropical and subtropical America; Gulf States and lower Mississippi Valley, north to southern Illinois, Kansas, etc.

SP. CHAR. *Adult male in full breeding plumage:* Plumage of the neck and body deep glossy black, with a faint greenish gloss; scapulars and lesser wing-coverts marked centrally (longitudinally) with light hoary ash, these markings elliptical on the upper part of the scapular region, linear or nearly acicular on the longer scapulars, and broadly ovate on the wing coverts; exposed surface of the middle and greater wing-coverts light hoary ash; remainder of the wings, with the tail, deep black, the latter less glossy, and broadly tipped with pale brown, passing into dirty whitish terminally. Sides of the occiput and neck ornamented by lengthened, loose-webbed, hair-like feathers of a dirty white or pale grayish lilac; nuchal feathers elongated, hair-like, forming a sort of loose mane. "Upper mandible dusky-olive, the edges yellow; lower mandible bright yellow, the edges and tip greenish; bare space about the eye bluish green; gular sac bright orange; iris bright carmine; tarsi and toes anteriorly dusky-olive, the hind parts and webs yellow, claws brownish black" (AUDUBON). *Adult male in winter:* Similar to the above, but destitute of the whitish feathers of the head and neck. *Adult female in full breeding plumage:* Head, neck, and breast grayish buff, becoming grayish brown (sometimes quite dusky) on the pileum and nape, the breast lighter, and bounded below by a narrow band of dark chestnut, bordering the upper edge of the black abdomen; sides of the upper part of the neck adorned with an inconspicuous longitudinal stripe of short white loose-webbed feathers. Rest of the plumage as in the male. Bill, etc., colored much as in the male, but iris paler red (pinkish). *Young in first winter:* Similar to the adult female, but lower parts duller black (the feathers usually indistinctly tipped with grayish brown), the chestnut pectoral band entirely absent; upper parts much duller black (the back decidedly brownish), the light markings much smaller and more indistinct. *Young first plumage:* Similar to the above, but entire lower parts light grayish buff, darker posteriorly. Transverse corrugations of the middle rectrices quite obsolete. *Nestling:* Covered with uniform buff-colored down.

Total length, about 32.50 to 36.00 inches; extent, 43.00 to 44.00; wing, 14.00; tail, 11.00; bill, 3.25; tarsus, 1.35.

This remarkable bird, while resembling in general habits the Cormorants, has marked peculiarities which enable the casual observer to readily distinguish it. Like the Cormorant, it has the habit of perching upon trees overhanging the water, and is an expert diver, remaining long beneath the surface, and when swimming usually showing but little of its body above the water. "Audubon never saw the Anhinga plunge or dive for its prey from an eminence. It is more or less gregarious by habit, the number seen together varying with the attractions of the locality, and ranging from eight or ten to thirty, or even several hundred. In the breeding season it moves in pairs. It is a diurnal bird, and if unmolested, returns each night to the same roosting place. When asleep it is said to stand with its body almost erect. In rainy weather it often spends the greater part of the day standing erect, with its neck and head stretched upward, remaining perfectly motionless, so that the water may glide off its plumage. The roosting place of the Anhinga is generally over water, often in the midst of some stagnant pool.

"This is said to be the very first among fresh-water divers, disappearing beneath the surface with the quickness of thought, leaving scarcely a ripple on the spot, and reappearing, perhaps with its head only above the water for a moment, at a place several hundred yards distant. If hit, and only wounded, this bird readily baffles all the endeavors of the sportsman to secure it. When swimming, and unmolested, it is buoyant, and moves with its whole body above the water; but when in danger it sinks its body, leaving only the head and neck out of the water, presenting the appearance of a portion of a large snake." (*Water Birds of North America.*)

The Anhinga appears to be a regular summer resident in the extreme southern portion of Illinois, since Mr. Kennicott found it to be common in the vicinity of Cairo, in 1865, while Mr. Nelson observed it in the same locality twenty years later.

Order **LONGIPENNES**—The Long-winged Swimmers.

Characters. Nostrils lateral and perforate, never tubular; covering of the bill simple, or broken only by a sort of imperfect cere (in *Stercorariidæ*). Tip of the maxilla never strongly hooked, often straight. Anterior toes webbed. Hallux small and elevated, sometimes rudimentary. Basipterygoid bones absent. Palate schizognathous. Carotids double. Eggs several, colored. Young altricial and ptilopædic. Habit highly volucral.

The *Longipennes* are so closely related in their structure to the *Limicolæ* that some systemists unite them in one group*.

There seems to be no osteological character separating the two groups, except that the *Limicolæ* possess "basipterygoid processes," while the *Longipennes* do not; and the external differences are chiefly teleological in their character, the *Longipennes* being adapted to a natatorial life, while the *Limicolæ*, with their longer legs and (usually) cleft toes are more waders than swimmers, though some of them, notably the Phalaropes, are as much at home on the surface of deep water as the gulls themselves.

In both groups, the young, when hatched, are covered with a dense soft down; but those of the *Longipennes* are reared in the nest, while those of the *Limicolæ* run about as soon as hatched.

Three families are recognized, of which two occur in Illinois, their characters being as follows:

A. Bill with the lower mandible not longer than the upper, and not excessively compressed.

1. **Stercorariidæ.** Covering of the upper mandible composed of four distinct pieces—a terminal unguis, or hook, two lateral pieces and a cere-like piece saddled upon the culmen, its edges overhanging the nostril.
2. **Laridæ.** Covering of upper mandible consisting of a single piece through which the nostrils are pierced.

B. Bill with lower mandible much longer than the upper, both mandibles excessively compressed, like a thin knife-blade, for terminal portion.

3. **Rynchopidæ.** (Extralimital to Illinois.)

* *Gavio-Limicolæ:* Seebohm, *The Ibis*, Oct. 1883, pp. 431–433.

FAMILY STERCORARIIDÆ.—THE SKUAS AND JAEGERS.

CHARACTERS. Covering of the maxilla, not entire as in the *Laridæ*, the basal half being furnished with a saddle-like horny cere, the lower edge of which overhangs the nostrils; toes fully webbed, the claws strongly curved and sharp; posterior side of tarsus roughened; tail more or less graduated, the middle pair of feathers projecting more or less beyond the rest.

The Family *Stercorariidæ* is separated from the *Laridæ* chiefly on account of the peculiar bill, which shows a not distant resemblance to that of some raptorial birds. The species are all predatory in their nature, being, in fact the most predaceous of sea-fowl—veritable "robbers of the sea." The smaller Jaegers (genus *Stercorarius*) pirate upon gulls and other sea-fowl, thus earning the common names of "gull chaser," "jaeger" (hunter), etc.; while the larger skuas (genus *Megalestris*), also beat along the shores or even over the land, and besides forcing gulls and other birds to disgorge or relinquish their food, prey on various birds much in the manner of hawks and falcons. Indeed, it is said that at Kerguelen Island, in the Antarctic Ocean, the *Megalestris antarcticus* keeps strictly to the land, where it is very destructive to ducks and other water-fowl.

Only two genera are recognized, their characters being as follows:

1. **Megalestris.** Size large (in bulk equal to the largest gulls), and form robust; depth of bill at base equal to not less than half of the length of the upper mandible, measured along the side; tarsus shorter than middle toe with claw; tail short, nearly even, the middle pair of feathers scarcely projecting beyond the rest; color dull brownish, sometimes streaked (never barred) with paler, the base of the primaries with a whitish patch.
2. **Stercorarius.** Size medium or rather small (not exceeding the medium-sized gulls), and form more slender and graceful; depth of bill at base less than half the length of the upper mandible, measured along the side; tarsus decidedly longer than middle toe with claw; middle rectrices in the adult projecting far beyond the rest; color plain slaty or dusky, often varied with white or yellowish, in the adult; dusky barred with paler in young; no white at base of primaries.

GENUS **MEGALESTRIS** BONAPARTE.

Catharacta BRÜNN. Orn. Bor. 1764, 32. Type, *C. skua* BRÜNN. (*Nec Catarractes* BRISS. 1760.)

Megalestris BONAP. Cat. Parzudaki, 1856, 11. Type, *Larus catarractes* LINN. = *Catharacta skua* BRÜNN.

Buphagus "MOEHR." COUES. Proc. Acad. Nat. Sci. Phila. 1863, 124. Same type.

GEN. CHAR. Size large (about equal to *Larus argentatus*); form robust and powerful; depth of bill through the base equal to or exceeding half the length of the mandible, measured along the side; tarsus shorter than middle toe and claw; tail short, the middle pair of feathers scarcely projecting beyond the rest. General color nearly uniform grayish brown or sooty, usually indistinctly streaked with light rusty, or cinnamon, especially around neck and on back; quills whitish at base.

Besides the northern *M. skua*, two other species, or sub species, *M. antarcticus* (LESS.) and *M. chilensis* (BONAP.) are known, the geographical ranges of which are indicated by their specific names.

Megalestris skua (Brünn.)

SKUA.

Popular synonyms. Skua Gull; Gull-chaser; Sea-hen.

Catharacta skua BRÜNN. Orn. Bor. 1764, 33.

Buphagus skua COUES, Proc. Acad. Nat. Sci. Phila. 1863, 125; B. N. W. 1874, 604.

Stercorarius (Buphagus) skua COUES, Key, 1872, 309.

Stercorarius skua COUES, Check List, 1873, No. 539; 2d ed. 1882, No. 764.

Megalestris skua RIDGW. Proc. U. S. Nat. Mus. iii, 1880, 208; Nom. N. Am. B. 1881, No. 696; Man. N. Am. B. 1887, 21.—B. B. & R. Water B. N. Am. B. ii, 1884, 328.—A. O. U. Check List, 1886, No. 35.

Larus catarractes LINN. S. N. ed. 12, i, 1766, 226.

Lestris catarractes ILLIG. Prodr. 1811, 272.—NUTT. Man. ii, 1834, 312.

Stercorarius catarractes BONAP. Consp. ii, 1856, 206.—LAWR. in Baird's B. N. Am. 1858, 838.—BAIRD, Cat. N. Am. B. 1859, No. 652.—ELLIOT, Illust. B. Am. ii, 1869, pl. 56.—SAUNDERS, P. Z. S. 1876, 319.

Catarractes fusca LEACH, Syst. Cat. 1816, 40.

HAB. Coasts and islands of the North Atlantic, chiefly on the eastern side, where south as far as Spain in winter. On the American side, south, in winter, to coast of Massachusetts, Long Island, and even to North Carolina. Accidental in Illinois. Coast of California.*

SP. CHAR. *Adult:* Prevailing color dull brownish, the interscapulars, scapulars, and wing-coverts marked with median streaks of pale cinnamon; feathers of head and neck with similar but narrower streaks; lower parts mixed cinnamon and grayish brown, nearly uniform on breast and belly, but forming indistinct stripes on sides and flanks. Remigés, primary-coverts, and alulæ brownish dusky, the first white at the base, this white concealed on secondaries, but showing as a distinct patch on the primaries. Tail uniform dusky. Bill dusky; iris brown; legs and feet black. *Young:* Head, neck, and lower parts plain grayish brown, the latter tinged with cinnamon; upper parts dark grayish brown, palest on back and lesser wing-coverts, where indistinctly spotted with rusty cinnamon. Bill and feet brownish. *Downy young:* "Covered with soft, close, uniform brownish or cinnamon-gray down; rather darker in color on the upper parts than on the under surface of the body." (DRESSER.)

Length, about 22.00; extent, 54.00; wing, 15.75–16.15; exposed culmen, about 2.05; depth of bill at base, .80; tarsus, 2.40–2.70; middle toe, 2.15–2.45.

* California examples may be the Pacific South-American *M. chilensis*.

The Skua is a maritime bird of irregular and uncertain distribution, but by no means common anywhere along the coasts of North America. According to Captain J. W. Collins, of the United States Fish Commission, whose knowledge of our sea-birds is probably greater than that of any other person on account of his long connection with the cod-fisheries of the Newfoundland Banks, informs us* that this bird, the "Sea-hen" of the fishermen, is occasionally seen on the fishing grounds at all seasons, but is never abundant, one, two, or three birds, being generally seen at a time, while on very rare occasions perhaps half a dozen will gather round a vessel from which offal is being thrown. He found them most common on the Grand Bank in autumn, and in the fall of 1875 shot several fine specimens that were used as bait.

Genus STERCORARIUS Brisson.

Stercorarius Briss. Orn. v, 1760, 149. Type, *Larus parasiticus* Linn.
Lestris Illig. Prodr. 1811, 272. Same type.

Gen. Char. Size medium (about that of *Larus delawarensis* and *L. canus*); form more graceful and slender than *Megalestris;* depth of bill through base less than half the length of the mandible, measured along its side; tarsus decidedly longer than middle toe and claw; middle pair of tail-feathers (in adults) projecting far beyond the rest.

This genus differs from *Megalestris* chiefly in the smaller size and more slender, graceful form of its members, the increased slenderness extending to all parts of the organization, as indicated in the above diagnosis.

Of the three known species, one differs considerably in form from the other two, which are sometimes so much alike as to be with difficulty distinguished from one another. Their differential characters are as follows:

A. Culmen 1.45 or more, tarsus 2.00 or more, wing usually more than 13.50; lengthened middle tail-feathers broad and rounded at ends.

1. **S. pomarinus.**

B. Culmen less than 1.45, tarsus less than 2.00, wing usually less than 13.50; lengthened middle tail-feathers narrow and pointed at ends.

2. **S. parasiticus.** Length of nasal shield or cere, from base of unguis to frontal feathers, decidedly greater than from the former point to the tip of upper mandible.

3. **S. longicaudus.** Length of nasal shield from base of unguis to frontal feathers not greater than distance from former point to tip of upper mandible.

* *The Auk* i, 1884, p. 238.

Stercorarius pomarinus (Temm.)

POMARINE JAEGER.

Popular synomyms. Pomarine Skua; Gull-chaser; Gull-hunter; Marling-spike (Newfoundland Banks).

Larus pomarinus TEMM. Man. Orn. 1815, 514.—SW. & RICH F. B.-A. ii, 1831, 429.—NUTT. Man. ii, 1834, 315.—AUD. Orn. Biog. iii, 1835, 396; Synop. 1839, 332; B. Am. vii, 1844, 186, pl. 451.

Stercorarius pomarinus VIEILL. Nouv. Dict. xxxii, 1819, 153.—LAWR. in Baird's B. N. Am. 1858, 838.—BAIRD, Cat. N. Am. B. 1859, No. 653.—B. B. & R. Water B. N. Am. ii, 1884, 332. —A. O. U. Check List, 1886, No. 36.—RIDGW. Man. N. Am. B. 1887, 22.

Stercorarius pomatorhinus NEWTON, Ibis, 1865, 509.—COUES, Key, 1872, 309; Check List, 1873, No. 540; ed. 2, 1882, No. 765; B. N. W. 1874, 607.—RIDGW. Nom. N. Am. B. 1881, No. 697.

HAB. Northern portion of northern hemisphere, on the seas and larger inland waters, but chiefly maritime. In winter, south, in North America, to New Jersey, the Great Lakes, Nebraska, etc.; coast of Peru.

SP. CHAR. *Adult, lightest phase:* Pileum, lores, and malar region, with entire upper surface, except the nape, uniform dark sooty slate, with a slight plumbeous tinge in certain lights; anal region and crissum uniform plumbeous-slate, sometimes mixed with whitish. Rest of the head and neck (including entire nape), and lower parts, except as described, immaculate white, the auricular region more or less deeply tinged with straw-yellow. Bill brownish white (dull brownish in the dried skin), the terminal third black, sometimes clouded with bluish.* *Adult, usual plumage:* Similar to the above, but chest and nape barred or transversely spotted with dusky, and the sides irregularly barred with the same. *Adult, melanotic phase:* Entirely dark sooty slate, with a plumbeous cast in certain lights. *Young, light phase:* Head, neck, and lower parts dull buff, everywhere barred with dusky; the bars broad and sharply defined on the crissum and flanks, faint or nearly obsolete on the head and neck. Upper parts brownish dusky, the scapulars and interscapulars tipped with buff, the rump and upper tail-coverts spotted with the same. *Young, dark phase:* Whole plumage sooty slate, the breast, abdomen, and sides narrowly and rather indistinctly, the crissum and upper tail-coverts broadly and sharply, barred with deep buff.

Total length, about 20.00 inches; extent, 48.00; wing, 13.50–14.00; tail, 8.00–9.00; culmen, 1.45–1.75; tarsus, 2.00–2.10; middle toe (without claw), 1.60–1.75.

In the above diagnosis are described the light and dark extremes of coloration, with an intermediate phase which characterizes perhaps a majority of individuals of this species. Scarcely two specimens are exactly alike, however, in the details of coloration, every condition between the light and dark extremes existing in a large series.

The Pomarine Jaeger is a northern species which doubtless visits Lake Michigan in winter, though the evidence on which it is included as a bird of Illinois is unsatisfactory. In the *Bulletin of the Nuttall Ornithological Club*, for July, 1876, p. 41, Mr.

* *Adult male.* "Bill blackish brown at the end, dingy yellow toward the base; iris brown; tibia, toes, webs, and lower half of tarsus black; the upper half light blue; claws black" (AUDUBON).

According to MACGILLIVRAY (*History of British Birds*), the unfeathered parts are colored as follows: "Bill bluish gray, tinged with green, dusky at the end. Feet black; the upper half of the tarsus grayish blue."

Nelson mentions it as follows: "From the description of a bird seen with a flock of gulls near Evanston, Ill., by F. L. Rice of that place, and the account of a strange gull occasionally seen by a sportsman who does considerable shooting on Lake Michigan, I am certain this species is a rare visitant during severe winters."

The general habits of this species have been mentioned under the Family *Stercorariidæ*, on page 211; but the following notes by Mr. William Dutcher, on observations* made by him on the coast of Long Island are worth quoting: "From three to ten individuals could be seen any day at the fishing grounds, flying around among the Terns, chasing them about and compelling them to drop their fish. Every day on the 'slack' of the tides, when the bluefish bait seemed to be more abundant than at other times, the Terns would go over in crowds from Great Gull to the 'Race' to fish, and though no Jaegers could be seen in the air before the arrival of the Terns, no sooner would the latter begin to fish than the Jaegers would gather around to pursue their regular business of robbery. As soon as a Jaeger would spy a Tern with a fish in its bill, off it would start in pursuit, and dodge and dart as the Tern would, the Jaeger was always right in its track, pressing it closer and closer, until despairing of ever eluding its pursuer, the poor Tern would drop the fish, which would be caught by the Jaeger before it reached the water. Although the Terns were swift and graceful flyers, they were no match for their larger and more powerful enemies, who, when not engaged in pursuing the Terns, might sometimes be seen resting singly or in flocks of four or five on the surface of the water.

"Chas. B. Field informed me that the Jaegers, or 'Hawks', arrived about the same time as the bluefish, and stayed as long as the bluefish were there, but that he never saw them in winter.

"When I arrived at Little Gull both Jaegers and Shearwaters were very tame indeed, not seeming to pay the least attention to us when we went out among them after bluefish; in fact, I was told that a bird of one of these species had, a short time before, been knocked down with an oar. But after we had shot

* *The Auk*, April, 1889, pp. 125–126. The observations in question refer both to this species and the Parasitic Jaeger.

three or four of them, they seemed to grow wilder. The Jaegers while on the wing keep the tail widely spread, in the shape of a fan, the long feathers, when the birds have them, being kept close together."

Stercorarius parasiticus (Linn.)

PARASITIC JAEGER.

Popular synonyms. Richardson's Jaeger (= dark phase); Teaser; Bosun; Marling-spike (cod-fishermen).

Larus parasiticus LINN. S. N. ed. 10, i, 1758, 136; ed. 12, i, 1766, 226.
Stercorarius parasiticus SCHÄFF. Mus. Orn. 1779, 62, pl. 37.—LAWR. in Baird's B. N. Am. 1858, 839.—BAIRD, Cat. N. Am. B. 1859, No. 654.—COUES, Key, 1872, 309; Check List, 1873, No. 541; ed. 2, 1882, No. 766; B. N. W. 1874, 611.—B. B. & R. Water B. ii, 1884, 335.—A. O. U. Check List, 1886, No. 37.—RIDGW. Man. N. Am. B. 1887, 22.
Larus crepidatus BANKS, Hawkesworth's Voy. ii, 1773, 15.
Stercorarius crepidatus VIEILL. Nouv. Dict. 1819, 155.—SAUNDERS, P. Z. S. 1876, 326.—RIDGW. Nom. N. Am. B. 1881, No. 698.
Lestris richardsoni SW. & RICH. F. B.-A. ii, 1831, 433, pl. 73.—NUTT. Man. ii, 1834, 319.—AUD. Orn. Biog. iii, 1835, 503; Synop. 1839, 332; B. Am. vii, 1844, 190, pl. 452.

HAB. Northern part of northern hemisphere; south in America, in winter, to New York, Illinois, and Colorado, and even to Brazil (Rio de Janeiro; *fide* SAUNDERS, *Jour. Linn. Soc.* xiv, 392). Breeds in the "Barren Grounds" of Arctic America.

SP. CHAR. *Adult, light phase:* Entire pileum, with lores, grayish brown; rest of the head, with entire neck and lower parts as far as the crissum, white, the head and neck more or less tinged with straw-yellow. Upper parts uniform brownish slate, becoming gradually darker on the primaries and tail. Crissum uniform brownish gray. "Bill grayish black, the upper parts bluish; iris brown; legs and feet black." (AUDUBON).* *Adult, dark phase:* Entirely uniform dark sooty slate, the remiges darker, nearly black terminally. *Young, light phase:* Head and neck streaked with dusky brown and fulvous-buff, the latter usually predominating; lower parts more or less distinctly barred, or spotted transversely, with the same. Upper parts brownish dusky, all the feathers bordered terminally with fulvous-buff. *Young, dark phase:* Prevailing color dark brownish slate, the wings and tail darker. Middle of the neck, all round, indistinctly streaked with grayish white; lower parts, except chest and upper parts of breast, barred with grayish white, the bars broad and sharply defined on the crissum. Scapulars, interscapulars, wing-coverts, upper tail-coverts, and feathers of the rump narrowly tipped with pale dull buff. "Bill light blue, dusky at the end; iris brown; tarsi and basal portion of the toes and webs light blue, the rest black" (AUDUBON). *Downy young:* Entirely silky grayish brown, lighter on the under surface.

Total length, about 18.50 inches; extent, 40.00; wing, 11.80–13.15 (average, 12.67); middle tail-feathers, 7.70–10.25 (8.66), the lateral rectrices, 4.90–6.25 (5.40); culmen, 1.15–1.40 (1.27); tarsus, 1.50–1.85 (1.70); middle toe, 1.20–1.45 (1.34).

Between the extreme phases of plumage described above there is in different specimens every possible intermediate coloration, the individual variation being fully as great as in the case of

*According to MACGILLIVRAY (*History of British Birds*), the adult male in summer has the bill grayish black, tinged with blue above, the base of the lower mandible slightly flesh-colored, and the feet and claws black.

S. pomarinus. Occasionally the middle rectrices are nearly as long and attenuated as in *S. longicaudus*, and in the plumage there is sometimes hardly any difference between examples of the two species. They differ constantly, however, in the form of the bill and, in adult birds, in the color of the tarsi; a bird with black tarsi and having the nasal shield (measured along the culmen) decidedly longer than the terminal portion of the bill (from the point to the anterior edge of the nostril) being with certainty *S. parasiticus*, while an example in adult plumage having pale bluish tarsi and the nasal shield not longer than the terminal portion of the bill, is sure to be *S. longicaudus*. It is scarcely probable that the two forms are conspecific, but possibly they may interbreed to a slight extent, and thus produce hybrids.

The Parasitic Jaeger is known as an Illinois bird only on account of its occasional occurrence on Lake Michigan during winter. Its habits are not obviously different from those of the Pomarine Jaeger (*S. pomarinus*), as briefly described on page 214.

Stercorarius longicaudus Vieill.

LONG-TAILED JAEGER.

Popular synonyms. Arctic Jaeger; Buffon's Skua; Long-tailed Skua; Whip-tail (cod-fishermen); Marling-spike (do.).

Stercorarius longicaudus Vieill. Nouv. Dict. xxxii, 1819, 157.—Stejn. Proc. U. S. Nat. Mus. v, 1882, 42.—B. B. & R. Water B. N. Am. ii, 1884, 339.—A. O. U. Check List, 1886, No. 38.—Ridgw. Man. N. Am. B. 1887, 23.

Stercorarius longicaudatus De Selys, Faun. Belg. 1842, 156.

Lestris parasitica Illig. Prodr. 1811, 273 (*nec Larus parasiticus* Linn.).—Less. Man. ii, 1828, 288.—Sw. & Rich. F. B.-A. ii, 1831, 430.—Nutt. Man. ii, 1834, 317.

Lestris parasiticus Temm. Man. Orn. ed. 1815, 512.—Aud. Orn. Biog. iii, 1835, 470, Synop. 1839, 333; B. Am. vii, 1844, 192, pl. 452.

Stercorarius parasiticus Saund. P. Z. S. 1876, 330.—Ridgw. Nom. N. Am. B. 1881, No. 699.

Larus crepidata Brehm & Schill. Beit. Z. Vög. iii, 1822, 212 (*nec* Banks).

Lestris buffoni Boie, Meyer's Tasch. iii, 1822, 212.—DeKay, N. Y. Zoöl. ii, 1844, 315. pl. 133, fig. 291.

Stercorarius buffoni Coues, Proc. Acad. Sci. Phila. 1863, 136; Key, 1872, 309; Check List, 1873, No. 542; 2d ed. 1882, No. 767; B. N. W. 1874, 615.

Stercorarius cepphus Stephens, Shaw's Gen. Zoöl. xiii, 1826, 211, pl. 23.—Lawr. in Baird's B. N. Am. 1858, 840.—Baird, Cat. N. Am. B. 1859, No. 655.

Lestris microrhynchus Brehm, Handb. Vög. Deutschl. 1831, 725.

Lestris lessoni Degl. Mem. Ac. R. Lille, 1838, 108.

Lestris brachyrhynchus Brehm, Vogelf, 1855, 337.

Lestris hardyi BONAP. Tabl. de Longip. Compt. Rend, 1856, 770; Consp. ii, 1857, 210.
Lestris brissoni "BOIE," DEGL. & GERBE, Orn. Eur. ii, 1867, 400.

HAB. Northern parts of northern hemisphere, breeding in the Arctic districts, and migrating south in winter to the more northern United States, occasionally as far as the Gulf of Mexico.

SP. CHAR. *Adult.* Entire pileum and upper part of nape, together with lores, malar region, and orbital region, sooty black, or dull slate-black; rest of head and neck, including lower portion of hind neck, straw-yellow, paler on the chin and throat. Upper parts, except as described, rather dark brownish gray or slate-color (more ashy on the back, where paler anteriorly), the remiges and rectrices darker, especially toward ends, where nearly black. Chest (sometimes breast also, or, rarely, even the belly) white, shading gradually into grayish, the under tail-coverts, anal region, flanks, sides, and usually the abdomen, being deep ash-gray, becoming gradually paler anteriorly. Bill blackish, said to be partly bluish in life; iris brown; feet black, the tarsus light grayish blue in life (changing to yellowish in dried skin).

Length, about 20.00–23.00 inches; extent, 36.00–38.50; wing, 11.55–12.85; tail, elongated middle feathers, 10.50–14.50, outer feathers, 4.75–6.00; culmen, 1.10–1.30; tarsus, 1.50–1.80; middle toe, 1.08–1.30.

This species apparently has no dark phase, like that of *S. parasiticus*.

The Long-tailed Jaeger is included in this work on Illinois birds on the strength of the following information received from Mr. W. H. Ballou, in a letter dated March 11, 1878:

"It may be of some value to you to know that I picked up *dead* on the Mississippi shore of Cairo, Ill., one specimen of Buffon's, or the Long-tailed Jaeger. The specimen was obtained in November, 1876. It might have been killed or died in the headwaters of the Mississippi or Missouri River and floated down for all I know. It was too much decayed to preserve, and seemed to have been dead a number of days. After an examination by myself and another gentleman we were compelled to throw it away."

FAMILY LARIDÆ.—THE GULLS AND TERNS.

CHARACTERS. Bill moderately compressed, or sometimes nearly cylindrical, its covering entire; the tip of the maxilla overhanging, or at least meeting, that of the mandible; the culmen more or less curved, but never arched, terminally—sometimes nearly straight throughout; symphysis of the mandible usually forming more or less of an angle, this, in most cases, prominent in proportion to the relative depth of the bill; nostrils sub-basal, perforate; legs and feet of proportionate size. Tail extremely variable in form and length.

Although including among its very numerous members great extremes of size and form, the family *Laridæ* as here restricted is not divisible into more than two subfamilies; and these are so nearly united through certain forms as to be really more artificial than natural. They may, with considerable difficulty, be defined as follows:

Subfamily **Larinæ**. Depth of bill decidedly greater at the angle than at the nostril; terminal portion of culmen decidedly curved; angle at lower mandible always distinct, often very prominent; tail usually even, but sometimes slightly emarginate (*Rissa*), deeply emarginate (*Xema*), forked (*Creagrus*) or graduated (*Rhodostethia*). Size, extremely variable (wing 8.75–20.00).

Subfamily **Sterninæ**. Depth of bill at angle less than at middle of nostrils; terminal portion of culmen straight, or but slightly curved, the bill being narrow and pointed; angle of lower mandible seldom prominent; tail more or less forked (except in *Anous*). Size extremely variable (wing 6.50–17.50).

The North American genera may be distinguished by the following characters:

SUBFAMILY LARINÆ.—THE GULLS.

A. Tarsus roughened or serrate behind.

1. *Gavia*. Tail even; tarsus shorter than middle toe with claw; hind toe perfectly developed, but small; size medium (wing about 13.25); color entirely white, the young scantily spotted with dusky. (Not represented in the Illinois fauna.)

B. Tarsus not roughened or serrate behind.

a^1. Hind toe rudimentary or altogether absent.

2. **Rissa**. Tail slightly emarginate; tarsus shorter than middle toe without claw; size medium (wing about 12.00–13.00); *adult* white, with bluish gray mantle; *young*, similar to adult, but hind neck with a blackish patch, and lesser wing-coverts sometimes (in one species) also with a black patch.

a^2. Hind toe perfectly developed, though small.

*b*¹. Culmen decidedly more than two thirds as long as tarsus.
*c*¹. Tail even; size, color, and all other characters extremely variable.
3. Larus.
*c*². Tail emarginate or forked.
4. Xema. Tail much less than half as long as wing, and forked for not more than one eighth its length.
5. *Creagrus*. Tail nearly half as long as wing, and forked for about one third its length. (Not represented in the Illinois fauna.)
*b*². Culmen decidedly less than two thirds as long as tarsus.
6. *Rhodostethia*. Tail graduated, the lateral feathers .75–1.25 shorter than the middle pair. (Not represented in the Illinois fauna.)

Subfamily STERNINÆ.—The Terns.

A. Tail more or less forked, the outer feather longest.
a. Tail much more than one third as long as wing, usually (except in subgenus *Thalasseus*) forked for more than one fifth its total length, the outer feathers narrow and pointed at tips; webs of feet occupying more than half the interdigital space.
7. Gelochelidon. Depth of bill at base equal to one third the length of the exposed culmen; gonys shorter than inner toe, without claw.
8. Sterna. Depth of bill at base less than one third the length of the exposed culmen; gonys longer than inner toe, without claw.
b. Tail little more than one third as long as wing, forked for less than one fifth its total length, the outer feathers broad and rounded at tip; webs of feet occupying less than half the interdigital space.
9. Hydrochelidon.
B. Tail graduated.
10. *Anous*. (Not represented in the Illinois fauna.)

Subfamily LARINÆ.—The Gulls.

Genus RISSA Leach.

Rissa Leach, Stephens's Gen. Zoöl. xiii, 1825, 180. Type, *Larus rissa* Brünn.=*L. tridactylus* Linn.

Gen. Char. Size medium; tail even, or slightly emarginate; hind toe rudimentary or entirely absent, the nail usually obsolete; tarsus much shorter than the middle toe without its claw, not rough or serrate behind. *Adults* with head, neck, rump, upper tail-coverts, tail, tips of secondaries, and entire lower parts pure white; mantle bluish gray, the quills varied with white and black; bill yellowish, feet blackish or bright red in life. *Young* similar to adults, but hind-neck crossed by a blackish collar or patch, and sometimes (in *R. tridactyla*) a blackish patch on lesser wing-coverts and black band across tip of tail. *Downy young* white, tinged above with buffy and yellowish gray, but without spots or other distinct markings. *Eggs* 2–5, ovate, or short-ovate, olivaceous white, grayish white, brownish white, or buffy, blotched and spotted with brown and lavender-gray.

Only two species of *Rissa* are known, both of which belong to the North American fauna. They may readily be distinguished by the following characters:

1. **R. tridactyla.** Legs and feet black; wing, about 12.25 inches; culmen, 1.40–1.50; depth of bill at base, .59; tarsus, 1.30; middle toe with claw, 1.80.
2. **R. brevirostris.** Legs and feet deep coral- or vermilion-red (drying yellowish); wing, about 13.00 inches; culmen, 1.20; depth of bill through base, .50; tarsus, 1.25; middle toe with claw, nearly 2.00. HAB. North Pacific, particularly the American side.

Rissa tridactyla (Linn.)

KITTIWAKE.

Popular synonyms. Kittiwake Gull; Tarrock (England, name for young); Winter Gull, Pinyole, or Pinny Owl (Newfoundland Banks).

Larus tridactylus LINN. S. N. ed. 10, i, 1758, 136; ed. 12, i, 1766, 224.—SW. & RICH. F. B.-A. ii, 1831, 423.—NUTT. Man. ii, 1834, 298.—AUD. Orn. Biog. iii, 1835, 186, pl. 224; Synop. 1839, 326; B. Am. vii, 1844, 146 pl. 444.—COUES, Key, 1872, 314; Check List, 1873, No. 552.

Rissa tridactyla BONAP. Comp. List, 1838, 62.—LAWR. in Baird's B. N. Am. 1858, 854.—BAIRD, Cat. N. Am. B. 1859, No. 672.—SAUNDERS, P. Z. S. 1878, 163 (synonymy, etc.).—RIDGW. Nom. N. Am. B. 1881, No. 658; Man. N. Am. B. 1887, 25.—COUES, 2d Check List, 1882, No. 782.—A. O. U. Check List, 1886, No. 40.

Rissa tridactyla, a. *tridactyla* B. B. & R. Water B. N. Am. ii, 1884, 202.

Larus (*Rissa*) *tridactylus* COUES, B. N. W. 1874, 644.

Larus rissa BRÜNN. Orn. Bor. 1764, 42.—LINN. S. N. ed. 12, i, 1766, 224.

Larus albus MÜLLER, Natursyst. 1776, 108 (based Buffon's *Mouette cendrée tachettée*).

Larus cinerarius FABR. Fauna Grœnl. 1780, 101 (not of LINN. 1766.—Winter plumage).

Larus nævius SCHÄFF. Mus. Orn. 1789, 64 (not of LINN.).

Larus torquatus PALL. Zoog. Rosso-As. ii, 1826, 328.

Larus canus PALL. l. c. 330 (not of LINN.).

Larus gavia PALL. l. c. 329.

Larus riga GMEL. S. N. i, pt. ii, 1788, 594 (misprint).

Rissa brunnichii LEACH, Stephen's Gen. Zoöl. xiii, pt. i, 1826, 181, pl. 21.

Rissa cinerea EYTON, Cat. Br. B. 1836, 52.

Laroides minor BREHM, Vög. Deutschl. 1831, 756.

Rissa borealis BREHM, Naum. 1855, 294 (not *Larus borealis* BRUCH).

Rissa gregaria BREHM, l. c.

HAB. Circumpolar regions in summer, coming south in winter to the Middle States and Great Lakes.

SP. CHAR. *Adult in summer:* Mantle deep pearl-gray (about the same shade as *Larus brachyrhynchus* and *L. californicus*), the secondaries passing into white terminally. Primaries paler pearl-gray, the five outer quills with their terminal portion black, this color extending for about 3.25 inches on the outer and .75 of an inch, more or less, on the fifth, and of intermediate extent on those between; outer web of the exterior quill almost wholly black; inner quills pale pearl-blue, scarcely paler terminally, the sixth sometimes marked with a black spot near the end of the outer web; fifth quill tipped with white, and fourth with a minute apical spot (when not worn off). Rest of the plumage snow-white. Bill pale yellow, sometimes tinged with greenish; inside of mouth vermilion-red; eyelids red; iris brown; legs and feet black or dusky brown. *Adult in winter:* Similar, but nape and occiput washed with the color of the back, the auricular region, and immediately in front of the eye, with a dark plumbeous suffusion, sometimes extending across the occiput. *Young,*

first plumage: Somewhat similar to the winter adult, but lower part of nape covered by a large transverse patch of black, the anterior lesser wing-coverts also more or less black, as are the centres of the innermost lesser coverts and tertials; primary coverts and outer webs of four or five outer primaries also black. Tail crossed at the end (except lateral pair of feathers) by a broad black band, widest on the intermediæ. Bill wholly black; "edge of eyelids and iris as in the adult" (AUDUBON); legs and feet dusky brownish. *Downy young:* Head, neck, wings, and lower parts, immaculate white, the neck and base of the wings more or less tinged with buff; back, rump, and flanks, yellowish gray, the down darker at the base.

Wing, about 12.25 inches; culmen, 1.40–1.50; depth of bill at base, .59, through angle, .40; tarsus, 1.30; middle toe (with claw), 1.80.

The Kittiwake is a northern gull which visits the Great Lakes in winter, having been observed in the vicinity of Chicago by Mr. Nelson, near Racine, Wisconsin, by Dr. Hoy, and in Minnesota, by Dr. Hatch. During the breeding season, however, it is strictly a littoral and maritime species, its summer home, on the American side of the Atlantic, extending from the lower St. Lawrence, Newfoundland, etc., to Greenland, throughout which extensive region it is perhaps the most numerous species of the family. It is said to have become much less abundant than formerly on the New England coast (where it used to pass the winter in immense numbers), on account of its destruction by the fishermen for food and slaughter by city gunners for "sport"—the latter, it is said, shooting them for sport or practice, and leaving the dead and wounded to float out to sea with the ebbing tide.

GENUS **LARUS** LINNÆUS.

Larus LINN. S. N. ed. 10, i, 1758, 136; ed. 12, i, 1766, 224. Type, by elimination, *L. canus* LINN.
Leucus KAUP. Nat. Syst. Eur. Thierw. 1829, 86. ("Includes *L. marinus, glaucus* and *fuscus*".)
Laroides BREHM, Vög. Deutschl. 1831, 738. ("Includes most of the European hoodless Gulls".)
Gavina BONAP. Naum. 1854, 212. ("For *L. canus* and allies and for *L. adouini*."—SAUNDERS).
Chroicocephalus EYTON, Brit. B. 1836, 53. Type, *Larus capistratus* TEMM.
Atricilla BONAP. Naum. 1854, 212. Type, *A. catesbœi* BP.=*Larus atricilla* LINN.
Dominicanus BRUCH, J. f. O. 1853, 100. Type, *Larus marinus* LINN.
Glaucus BRUCH, l. c. 1853, 101, Type, *Larus glaucus* LINN.
Blasipus "BP." BRUCH, l. c. 1853, 108. Type, *Larus modestus* TSCHUDI.
Melagavia BONAP. Naum. 1854, 213. Type, *Larus franklinii* SW. & RICH.

GEN. CHAR. Size exceedingly variable, ranging from that of the smaller Albatrosses down to that of the medium-sized Terns; tail even; tarsus always longer than the middle toe with its claw (except in *L. minutus*), and smoothish behind; colors extremely variable, but young always widely different from the adult.

The genus *Larus*, in the comprehensive sense in which it is here adopted, includes many very dissimilar forms, which probably represent distinct genera.

The species belonging to eastern North America may be characterized as follows:

A. Adult with the entire head, neck, lower parts, and tail pure white. (**Larus**, LINN.)

a. Mantle very pale pearl-blue; primaries the same, fading into white toward the ends.

1. **L. glaucus.** Wing, 16.75–18.60 inches; culmen, 2.15–2.65; depth of bill through the angle, .75–1.00; tarsus, 2.30–3.00; middle toe, 1.95–2.50. Eyelids in summer adult, reddish purple; feet flesh-color.
2. **L. leucopterus.** Wing, 15.40–16.50 inches; culmen, 1.65–1.90; depth of bill through angle, .60–.70; tarsus, 2.05–2.20; middle toe, 1.70–1.95. Eyelids in summer adult, flesh-color; feet inclining to orange-red.

b. Mantle pale pearl-blue; primaries similar, but abruptly tipped with white.

3. **L. kumlieni.** Five outer primaries marked with slate-gray spaces immediately before the white tips; color of the mantle as in *L. leucopterus*, and size about the same. Eyelids in summer adult reddish purple, or purplish flesh-color; feet flesh-color. Wing, 15.00–17.00 inches; culmen, 1.60–1.90; depth of bill through angle .55–.66; tarsus, 2.10–2.40. *Hab.* North Atlantic coast, breeding in Cumberland Sound, and migrating south in winter to Nova Scotia, New Brunswick, and New York.

c. Mantle dark slate-color, the primaries marked with black and white terminally.

4. **L. marinus.** Wing, 17.60–19.50; culmen, 2.40–2.60; depth of bill at angle; .98–1.05; tarsus, 2.70–3.10. *Hab.* Coasts of the North Atlantic.

d. Mantle some shade of bluish gray; primaries marked with black and white at and near the end.

5. **L. argentatus.** Wing, 15.75–17.90 inches; culmen, 1.85–2.20; depth of bill through angle, .70–.80; tarsus, 2.30–2.72; middle toe, 1.85–2.25. Mantle pale pearl-blue. Bill deep yellow, the mandible with red subterminal spot; eyelids yellowish; iris silvery white or pale yellow; legs and feet flesh-color.
6. **L. argentatus smithsonianus.** Similar to true *L. argentatus*, but averaging larger and with less white and more black on primaries. Wing, 16.25–17.50; culmen, 1.95–2.50; depth of bill through angle, .68–.85; tarsus, 2.30–2 80; middle toe, 1.85–2.25.
7. **L. delawarensis.** Mantle pale pearl-blue (much as in *L. argentatus*). Wing, 13.60–15.75 inches; culmen, 1.55–1.75; depth of bill through angle, .50–.65; tarsus, 1.90–2.45; middle toe, 1.30–1.60. Bill greenish yellow, crossed near the end by a blackish band, the tip sometimes tinged with orange; eyelids vermilion-red; iris clear pale yellow; legs and feet pale yellow, sometimes tinged with greenish.
8. **L. canus.** Mantle pale ashy blue (as in *L. brachyrhynchus*). Wing, 13.90–14.50 inches; culmen, 1.35–1.60; depth of bill through angle, .45–.50; tarsus, 1.90–2.25; middle toe, 1.35–1.45. Bill greenish olivaceous (in the dried skin), the terminal third yellow; eyelids vermilion-red; iris grayish brown; legs and feet yellowish green. *Hab.* Palæarctic region; accidental in Labrador?

B. Adult with the head and upper part of the neck black or slaty in summer, forming a well defined "hood;" plumage of the lower parts rose-tinted; size medium to very small; the bill slender. (**Chroicocephalus**, EYTON.)

a. Tarsus longer than the middle toe and claw.

9. **L. atricilla.** Bill and feet dark brownish red, the former sometimes tipped with brighter red; eyelids dull red; iris dark brown; hood dark sooty-slate; mantle deep plumbeous-slate. Wing, about 13.00 inches.

b. Tarsus shorter than the middle toe and claw.

10. **L. franklinii.** Bill and feet carmine-red; iris dark brown; hood plumbeous-black; mantle deep bluish plumbeous. Wing, about 11.25 inches.
11. **L. philadelphia.** Bill uniform deep black; legs and feet fine orange-red in summer, flesh-color in winter; iris dark brown; hood dark plumbeous; mantle delicate pearl-blue; Wing, about 10.25 inches.
12. **L. minutus.** Bill reddish dusky; legs and feet vermilion- or coral-red; hood deep black; mantle delicate pearl-gray; primaries without any black markings. Wing, about 8.75–9.00 inches. *Hab.* Palæarctic Region; accidental in Massachusetts and Bermudas.

Larus glaucus Brünn.

GLAUCOUS GULL.

Popular synonyms. Burgomaster; White Gull; Hutchins's Gull.

Larus glaucus Brünn. Orn. Bor. 1764, 44.—Fabr. Faun. Grœnl. 1780, 100.—Gmel. S. N. i, pt. ii, 1788, 600.—Nutt. Man. ii, 1834, 306.—Aud. Orn. Biog. v, 1839, 59, pl. 396; Synop. 1839, 329; B. Am. vii, 1844, 170, pl. 449.—Lawr. in Baird's B. N. Am. 1858, 842.—Baird, Cat. N. Am. B. 1859, No. 656.—Coues, Key, 1872, 311. Check List, 1873, No. 543; 2d ed. 1882, No. 768; B. N. W. 1874, 620.—Saunders, P. Z. S. 1878, 165.—Ridgw. Nom. N. Am. B. 1881, No. 660; Man. N. Am. B. 1887, 26.—B. B. & R. Water B. N. Am. ii, 1884, 211.—A. O. U. Check List, 1886, No. 42.

Larus hyperboreus Gunn. in Leem's Lapp. Beskr. 1767, 283.—Stejn. Proc. U. S. Nat. Mus. v, 1882, 39.

Larus glacialis "Benicke," Macgill. Mem. Wern. Soc. v, pt. i, 1824, 270.

Larus giganteus "Temm." Benicke, Ann. Watterau. Gesellsch. iii, 1814, 140.

"*Larus consul* Boie, Wiedemann, Zoöl. Mag. i, 126" (Saunders).

Larus leuceretes Schleep. N. Ann. Wetterau. Gesellsch. i, 1819, 314.

Larus islandicus Edmondst. Mem. Wern. iv, 1822, 185 (nec Edmonst. op. cit. p. 506 = *L. leucopterus*).

Larus hutchinsii Rich. F. B.-A. ii, 1831, 419 (note).—Coues, Proc. Acad. Nat. Sci. Phila. 1862. 294.—Elliot, Illustr. Am. B. ii, 1869, pl. 53.

Hab. Circumpolar regions, south in winter to Long Island, the Great Lakes, and (accidentally) Texas.

Sp. Char. *Adult in summer:* Mantle very pale pearl-blue; primaries still paler pearl-blue, or bluish white, fading gradually into white at ends, their shafts yellowish white or pale straw-color. "Iris golden yellow; eyelids orange-yellow; bill lemon-yellow, greenish toward tip, crimson spot on lower mandible; tarsi and toes flesh-color (L. Kumlien, MS.*). *Adult in winter:* Similar to the summer plumage, but head and neck streaked with pale brownish gray. "The bill is wine-yellow, the lower mandible with an orpiment patch near the end; the edges of the eyelids pale yellow; the feet flesh-colored, the claws bluish black" (Macgillivray). *Young, first plumage:* Ashy white, more or less tinged with pale brownish ash below, the upper parts more or less mottled transversely with the same; head and neck faintly streaked with the same. Terminal third of bill dusky, basal portion flesh-color; "iris yellowish brown" (Kumlien, MS.†). *Young, in second winter:* Wholly pure white, the bill and feet colored as above. *Downy young* (No. 76,217, Kinjuah Fiord, Cumberland Gulf, June 24, 1878; L. Kumlien): Grayish white, paler below; head and neck irregularly marked with scattered large spots of dusky; back, wings, and rump irregularly clouded with dark grayish. Bill brownish, crossed by a broad dusky band; feet light brown.

Total length 26.00 to 32.00 inches; extent, 57.00 to 65.00; wing, 16.75–18.70 (average 17.93); culmen, 2.30–2.70 (2.52); depth of bill through angle, .80–1.00 (.88); tarsus, 2.60–3.05 (2.85); middle toe, with claw, 2.68–3.00 (2.84).

* According to Audubon, the adult male has the bill, etc., colored as follows: "Bill gamboge-yellow, with a carmine patch toward the end of the lower mandible, and the edges of both mandibles at the base of the same color. Edges of eyelids red, iris yellow. Feet flesh-colored, claws yellowish." The young are described as having the bill yellow to beyond the nostrils, the end black; the feet flesh-colored, with dusky claws; and the iris brown.

† Macgillivray ("*Hist. Brit. B.*" v, 563, 564) describes the fresh colors of the bill, etc., in the young as follows: "*Young:* The bill is horn-color, or pale yellowish gray; the upper mandible brownish black beyond the nostrils; the lower beyond the angle. The feet are flesh-color; the claws lightish brown. *Young, in third winter:* The bill is yellowish flesh-color, with only a dusky spot on each mandible toward the end; iris dull gray; the edges of the eyelids yellow; the feet flesh-color; the claws light grayish black."

The great Burgomaster Gull is an Arctic species which occasionally visits Lake Michigan in winter. It is the largest of the gulls, excepting only the Black-backed Gull, or "Saddleback" (*L. marinus*).

In Greenland, where it is almost a resident species, a few individuals (chiefly young birds) being seen in the very coldest weather, it is said to pirate upon the eiders (*Somateria mollissima borealis*), often compelling them to surrender the mussels which they have brought up from the bottom of the bays or fiords. There, "the principal breeding place of this gull in the vicinity of Ivigtut is close by the open sea, near the mouth of the fiord, where they congregate in considerable numbers. In August the young birds assemble in the fiord, especially near the narrow channels, as at Karsuk and Ellerslie, and feed during that month and the next on the berries of *Empetrum nigrum*. At that season they are easily shot, and their flesh is of a very savory flavor. The breasts of the young of all species of gull are eaten here as a delicacy." *

Larus leucopterus Faber.

ICELAND GULL.

Popular synonym. White-winged Gull.

Larus argentatus SABINE, Trans. Linn. Soc. xii, 1818, 546 (not of BRÜNN. 1764).

Larus leucopterus FABER, Prodr. Isl. Orn. 1822, 91.—SW. & RICH. F. B.-A. ii, 1831, 418.—NUTT. Man. ii, 1834, 305.—AUD. Orn. Biog. iii, 1835, 553, pl. 282; Synop 1839, 327; B. Am. vii, 1844, 159, pl. 447.—LAWR. in Baird's B. N. Am. 1858, 843.—BAIRD, Cat. N. Am. B. 1859, No. 658.—COUES, Key, 1872, 311; Check List, 1873, No. 544; 2d ed. 1882, No. 769; B. N. W. 1874, 622.—RIDGW. Nom. N. Am. B. 1881, No. 661; Man. N. Am. B. 1887, 26.—B. B. & R. Water B. N. Am. ii, 1884, 216.—A. O. U. Check List, 1886, No. 43.

Larus arcticus MACGILL. Mem. Wern. Soc. v, 1824, 268.

Larus glaucoides "TEMM." MEYER, Taschenb. Vög. Deutschl. iv, 1822, 197.—TEMM. Pl. Col. 77e livr. Introd. Larus, 1828.

Larus islandicus EDMONST. Mem. Wern. Soc. iv, 1823, 506 (nec *op. cit.* p. 185=*L. glaucus*).

Larus minor BREHM, Vög. Deutschl. 1831, 736.

Laroides subleucopterus BREHM, t. c. 746.

Larus (Glaucus) glacialis BRUCH. J. f. O. 1853, 101 (nec MACGILL. 1824).

HAB. Range about the same as that of *L. glaucus*. South in winter to coast of Massachusetts and the Great Lakes.

SP. CHAR. Similar to *L. glaucus*, but much smaller, the young darker colored. *Adult, in summer:* Mantle pale pearl-blue (a shade darker than in *L. glaucus*); remiges similar, but slightly paler, passing terminally into pure white. Rest of the plumage snow-white.

* M. CHAMBERLAIN, in *The Auk*, July 1889, pp. 214-215.

"Bill bright orange-yellow, tipped with yellowish green; vermilion spot on lower mandible; tarsi and toes flesh-color; iris cream-color" (L. KUMLIEN, MS.[1]). *Adult, in winter:* Similar, but head and neck streaked with dusky grayish. "The bill is wine-yellow, the lower mandible with an orpiment patch near the end; the edges of the eyelids yellow; the feet pale flesh-colored, the claws grayish brown; the iris pale yellow" (MACGILLIVRAY). *Young, first plumage:* Grayish white, the head and neck broadly streaked, the upper parts coarsely spotted, with brownish ash-gray; lower parts nearly uniform light brownish ash, the chin and throat white; bill wholly blackish; feet brownish. "The bill is very pale flesh-colored as far as the anterior extremity of the nostrils, beyond which both mandibles are brownish black. The feet are pale flesh-colored, the claws brownish black" (MACGILLIVRAY).[2]

Wing, 15.40–16.50 (15.76) inches; culmen, 1.65–1.90 (1.75); depth of bill through angle, .60–.70 (.66); tarsus, 2.05–2.20 (2.14); middle toe, 1.70–1.95 (1.81). [Four adults.]

The Iceland Gull has nearly the same distribution as its larger relative, the Burgomaster (*L. glaucus*), though breeding much farther south, and in appearance is almost exactly a miniature of that species. The name which has been adopted for it is, however, not very appropriate, since it is said not to breed at all in Iceland, merely passing the winter there. According to Faber,* the first specimens arrive in Iceland just after the middle of September, when both old and young make their appearance, confining themselves to the northern part of that island, among the small inlets, where great numbers pass the winter. Toward the end of April their numbers decrease, and by the end of May nearly all have disappeared. These birds were Faber's daily guests. They came on land to his winter dwelling, and snapped up the entrails thrown to them, fighting fiercely for them with the Ravens. One was so tame that it presented itself at his door every morning at a certain time, that it might be fed, and always gave notice of its arrival by a cry. This Gull would indicate to the seal-shooters in the fiord where the seals were to be looked for, by following their track to the sea, and hovering over them in flocks, with incessant cries. It is said to follow, in the same manner, the track of the codfish in the sea, in order to feed upon the booty hunted up by this fish. Faber further states that in the winter (1821) which he passed at Debratte, on the southern coast, not a single bird of this species was to be seen. On the 1st of March the shore was free of Sea-Gulls; but early

[1] "Bill gamboge-yellow, with a spot of orange-red near the end of lower mandible; the angle of the mouth and the edges of the eyelids are also orange-red. Iris pale yellow. Feet pale flesh-color; claws grayish brown" (AUDUBON).

[2] "Bill yellow, the tips black. Edges of eyelids pale reddish orange; iris brown. Feet yellowish flesh-color; claws grayish brown" (AUDUBON).

* As quoted by Dr. Brewer, in *The Water Birds of North America.*

on the 2d the air was filled with numbers of this species which had arrived during the night. The Icelanders concluded from the sudden appearance of the birds that shoals of codfish must have arrived on the coast, and it was soon found that this conjecture was correct. And there, where but a short time before an ornithological quiet had reigned, everything became enlivened by the coming of these birds, which hovered over the nets without intermission, and with incessant cries.

During the winter these Gulls were Faber's weather-guide. If they swam near the shore with their feathers puffed out, then on the following day storms and snow were to be expected. In fine weather the birds soared high in the air. These Gulls often sat by hundreds on a piece of ice, and in this way were drifted many miles. Their habits differ from those of the Glaucous Gull, which moves with more energy, while the *leucopterus* in its flight and deportment is the more graceful of the two. The latter is said to hover over its prey, to be somewhat greedy, always active, and never afraid to fight for its food with antagonists of equal or even superior strength.

Larus marinus Linn.

BLACK-BACKED GULL.

Popular synonyms. Saddle-back; Farmer Gull (Bay of Fundy).

Larus marinus Linn. S. N. ed. 10, i, 1758, 136; ed. 12, i, 1766, 225.—Nutt. Man. ii, 1834, 308.—Aud. Orn. Biog. iii, 1835, 305; v, 1839, 636, pl. 241; Synop. 1839, 329; B. Am. vii, 1844, 172, pl. 450.—Lawr. in Baird's B. N. Am. 1858, 844.—Baird, Cat. N. Am. B. 1859, No. 660.—Coues, Key, 1872, 312; Check List, 1873, No. 546; 2d. ed. 1882, No. 771; B. N. W. 1874, 624.—Ridgw. Nom. N. Am. B. 1881, No. 663; Man. N. Am. B. 1887, 28.—B. B. & R. Water B. N. Am. ii, 1884, 225.—A. O. U. Check List, 1886, No. 47.

Larus niger Briss. Orn. vi, 1760, 158.

Larus nævius Linn. S. N. ed. 12, i, 1766, 225.

Larus maculatus Bodd. Tabl. P. E. 1783, 16 (nec Brünn. 1764).

Larus maximus Leach, Cat. 1816, 40.

Larus mülleri Brehm, Vög. Deutschl. 1831, 729.

Larus fabricii Brehm, t. c. 730.

Hab. Coasts of the North Atlantic; in America, south in winter to Florida and the Great Lakes.

Sp. Char. Size very large (about equal to *L. glaucus*). *Adult, summer plumage:* Mantle dark brownish slate, the secondaries and tertials broadly (the former abruptly) tipped with white; first primary black, with the end, for a distance of about 2.50 inches, white; second similar, but the white tip marked near the end by a broad black bar on one or both webs; fourth quill black, tipped with white; fifth and sixth quills more slaty, tipped with white, and a wide black subterminal space, preceded by an irregular white bar; shorter quills lighter slate, widely tipped with white. Rest of the plumage pure white. "Bill gamboge-yellow, the lower mandible bright carmine toward the end; edges of eye

lids bright carmine; iris silvery; feet yellow;[1] claws black" (AUDUBON). *Adult, in winter:* Similar to the summer plumage, but the head and neck, superiorly and posteriorly, streaked with dusky. *Young, first plumage:* Above, dark slate-brown, the feathers broadly bordered with pale dull buff; remiges uniform brownish dusky, with narrow whitish tips; rectrices dusky, tipped with white and crossed near the end by a narrow band of grayish or brownish white. Head, neck, and lower parts dirty white, the head and neck, superiorly and posteriorly, streaked, and the lateral lower parts clouded, or irregularly spotted, with grayish brown. Bill dusky, black terminally and brownish at the base; iris dark brown; legs and feet "dusky whitish" (COUES, MS.). *Downy young:* Prevailing color grayish white, the upper parts marbled or irregularly spotted with dull grayish. Head marked with numerous irregular spots of dull black, somewhat as follows: forehead with a narrow mesial streak; crown with two spots, one behind the other, with a minute spot on each side, opposite the space between the two larger spots; occiput with four large spots arranged in a transverse series; below these, three others, their position corresponding to the spaces between the spots of the series above; below these three spots a ragged band across each side of the nape, the two separated by a considerable interval; then follow two or three spots across the lower part of the nape, their form and arrangement being rather indefinite. On the lores are three small spots arranged longitudinally; a spot over each eye; there are also several irregular large spots on the lower part of the head, rather less distinctly defined than the others.[2]

Total length, about 30.00 inches; wing, 17.60–19.50 (average, 18.48); culmen, 2.40–2.60 (2.49); depth of bill through angle, .98–1.05 (1.01); tarsus, 2.70–3.10 (2.83); middle toe, 2.10–2.50 (2.34). [Five adults.]

The great Black-backed Gull, or "Saddle-back," as it is more commonly called, is nearly if not quite equal to the Burgomaster (*L. glaucus*) in size and strength. Its habits are not essentially different from those of the other large species of the family.

Larus argentatus Brünn.

HERRING GULL.

Popular synonyms. Sea Gull; Gray Gull (young).

Larus cinereus BRISS. Orn. vi, 1760, 160, pl. 14.

Larus argentatus BRÜNN. Orn. Bor. 1764, 44.—GMEL. S. N. i, pt. ii, 1788, 600, et AUCT.—SAUNDERS, P. Z. S. 1878, 167 (part).—COUES, Check List, 1873, No. 547; 2d ed. 882, No. 772.—RIDGW. Nom. N. Am. B. 1881, No. 666; Man. N. Am. B. 1887, 30.—A. O. U. Check List, 1886, No. 51.

Larus argentatus, a. *argentatus* COUES, B. N. W. 1874, 625.

Larus argentatus, α. *argentatus* B. B. & R. Water B. N. Am. ii, 1884, 235.

[1] Other authorities give the color of the feet as flesh-color; and it seems that Audubon made a mistake in calling them yellow. Macgillivray describes the fresh colors of the adult male in winter as follows: "The bill is light yellow, the lower mandible with an orange-red patch near the end; the edges of the eyelids orange-red, the iris pale yellow; the feet flesh-colored, the claws dusky."

[2] Described from No. 84,765, from Labrador. It may be remarked with regard to the markings of the head, that while in the main those of the two sides correspond in position, some of them are asymmetrical; thus, the left lore has the three spots near together and roundish in form, the middle one above the others; the other lore has these spots much farther apart, in a line with one another, the middle one much elongated; there is but one spot over the right eye, two over the left.

Larus marinus, var. β LATH. Ind. Orn. ii, 1790, 814.
Larus glaucus RETZ. Fn. Suec. i, 1800, 156 (not of BRÜNN. 1764).
Larus argenteus BREHM, Beitr. Vög. iii, 1822, 781, 799 (part).
Larus argentatoides BREHM, t. c. 791, 799 (part).
Laroides major BREHM, Vög. Deutschl. 1831, 738.
Laroides argentaceus BREHM, t. c. 742.
? Laroides americanus BREHM, Vög. Deutschl. 1831, 743.
Goëland á manteau gris BUFF. Hist. Nat. Ois. viii, 1781, 406, pl. 32; Pl. Enl. 253.

HAB. Europe and northeastern North America (casual only ?).

SP. CHAR. *Adult in summer:* Mantle pale pearl-blue (a shade darker than in *L. glaucescens*), the secondaries and tertials passing terminally into white. Outer primary black, more slaty basally, the tip white, and a large white terminal spot across the inner, and sometimes the outer, web; next quill black tipped with white, and usually without any white except the apical spot; third, fourth, and fifth quills similar, but the basal half, or more, light pearl-gray (this extending farther on the inner web), the line of demarcation sharply defined; sixth quill light pearl-gray, broadly tipped with white, this preceded by a broad subterminal space of black, widest on the outer web; seventh quill similar, but the black much more restricted, and confined to the outer web; remaining primaries pale pearl-gray, passing gradually into white at ends. Remainder of the plumage snow-white. Bill deep chrome- or wax-yellow, with a large spot of bright red near the end of the mandible; eyelids bright yellow; iris silvery white or pale yellow; legs and feet flesh-color, claws brownish black. *Adult in winter:* Similar, but head and neck, except underneath, streaked with dusky grayish. "The bill is pure yellow, the lower mandible with an orange-red patch toward the end; the edges of the eyelids yellow; the iris pale yellow; the feet flesh-colored; the claws brownish black" (MACGILLIVRAY). *Young, first plumage:* Prevailing color brownish ash, nearly uniform below, the head and neck streaked with white; upper parts variegated by borders to the feathers and irregular spots of pale grayish buff; primary coverts, remiges, and rectrices blackish dusky. "The bill is bluish black, the base of the lower mandible flesh-colored" (MACGILLIVRAY).[1] *Downy young:* Grayish white, the lower parts (except throat) immaculate; head marked with irregular spots of black, indefinitely distributed; back, wings, and rump clouded with dusky grayish. Bill black, the end yellowish; feet brownish.

Total length, about 23.00 inches; wing, 15.75–17.90 (average, 16.38); culmen, 1.85–2.20 (2.07); depth of bill through angle, .72–.80 (.77); tarsus, 2.30–2.72 (2.50); middle toe, 1.90–2.25 (2.07).

The true Herring Gull is included in the list of Illinois birds on the strength of a specimen obtained at Chicago, March 27, 1876, formerly in Mr. Nelson's collection, which some years ago was identified by Dr. Coues as belonging to this form. The specimen should, however, be re-examined, since the separation of the ordinary American bird (*L. argentatus smithsonianus*) now rests on characters different, in part at least, from those on which the separation was originally made.*

[1] *After next moult.* "The bill is dull yellow, with a dusky patch on each mandible, and a little red on the lower; the iris yellow; the feet flesh-colored." (MACGILLIVRAY.)

* According to Mr. Nelson (*Bull. Nutt. Orn. Club*, vol. i, p. 41), the iris of this specimen was "hazel." If this was really the case (which there is no reason for doubting), the specimen can hardly have been *L. argentatus* in either of its forms, which, when adult (the bird in question was an adult female), always has the iris yellow. *L. californicus* has a dark brown or hazel iris, and it may possibly be that species; at any rate the case is one of considerable importance and the specimen should, if it can be traced, be carefully re-examined.

Larus argentatus smithsonianus Coues.

AMERICAN HERRING GULL.

Popular synonyms. Sea Gull; Gray Gull (young).

Larus argentatoides Brehm, Beitr. Vög. iii, 1822, 791, 799 (part).—Sw. & Rich. F. B.-A. ii, 1831, 417 (?).

Larus argentatus Bonap. Synop. 1828, 360, No. 300 (not of Linn.).—Nutt. Man. ii, 1834, 304.—Aud. Orn. Biog. iii, 1835, 588; v, 1839, 638; Synop. 1839, 328; Synop. 1839, 328; B. Am. vii, 1844, 163, pl. 448.—Lawr. in Baird's B. N. Am. 1858, 844.—Baird, Cat. N. Am. B. 1859, No. 661.—Coues, Key, 1872, 312.—Saunders, P. Z. S. 1878, 167 (part).

Larus smithsonianus Coues, Proc. Acad. Nat. Sci. Phila. 1862, 296.

Larus argentatus, var. *smithsonianus* Coues, Check List, 1873, No. 547 *b*.

Larus argentatus, b. *smithsonianus* Coues, B. N. W. 1874, 625.

Larus argentatus smithsonianus Ridgw. Nom. N. Am. B. 1881, No. 666 *a*; Man. N. Am. B. 1887, 31.—Coues, 2d Check List, 1882, No. 773.—A. O. U. Check List, 1886, No. 51 *a*.

Larus argentatus, *β. smithsonianus* B. B. & R. Water B. N. Am. ii, 1884, 235.

Hab. North America in general, more especially the Atlantic coast, where extending from Labrador to Cuba; breeding from eastern Maine northward; frequent throughout the interior, on the larger inland waters, and occasional on the Pacific coast.

Subsp. Char. Similar to true *L. argentatus*, but averaging larger, and adult with the white on the outer quill crossed by a subterminal bar or spot of black, this rarely less than .50 of an inch wide, and often extending to the extreme tip, thus reducing the white to a subterminal spot.

Length, 22.50–26.00 inches; wing, 16.25–17.50 (average, 17.24); culmen, 1.95–2.50 (2.24); depth of bill through angle, .68–.85 (.79); tarsus, 2.30–2.80 (2.57), middle toe, without claw, 1.85–2.25 (2.10).

The character of the markings on the outermost quill is more to be depended on as a distinctive character of the American Herring Gull than the difference of size, which is far less constant, many specimens, especially among those from Cumberland Gulf and other extreme northeastern localities combining the smaller size of the European with the wing pattern of the American bird.

With perhaps the exception of the Ring-billed Gull (*L. delawarensis*), this is the commonest gull of eastern North America in general, and the only one which is found in considerable numbers during winter on the waters, both coast and inland, of the United States east of the Rocky Mountains.

It breeds from the coast of Maine and southern Minnesota northward, and winters nearly throughout the country to the southward. According to Professor Cooke* it was seen at Chicago in the winter of 1883–84, and usually a few winter on Lake Michigan. As a rule it is found in winter throughout Illinois

* *Bird Migration in the Mississippi Valley*, p. 55.

and thence southward to the Gulf of Mexico. The severe cold of January, 1884, drove it almost entirely out of Illinois. One was seen at Saint Louis after the river began to be full of floating ice. It returned to Saint Louis January 29; two days later a party of eighteen went north above the Mississippi.

The following very interesting account of the manner in which the inhabitants of Newfoundland rear these gulls for food is published by Mr. Wm. Palmer, in the "Proceedings" of the United States National Museum (Vol. XIII., pp. 254–255):

"The well-fattened young of this species may be said to form a not insignificant part of the winter diet of the Newfoundland fishermen at outlying places. Capt. J. W. Collins in an interesting paper on sea birds, in the Report of the U. S. Fish Commission for 1882, alludes to this habit of the coast fishermen as follows:

'It may be of interest to mention in this connection that the coast fishermen of Newfoundland capture the young of the sea-gulls (generally of the larger species) while they are yet nestlings, and carefully rear them until they are full grown, feeding them chiefly on fish. A single family may have a dozen or twenty of these young birds. I have frequently seen ten or a dozen young gulls in a pen at Belloram, Fortune Bay, and there were a number of such pens in the little village. In many places on the Newfoundland coast these birds, I have been told, occupy the same place that with us is filled by the domestic fowls. Instead of the conventional turkey for the holidays, the coast fisherman is satisfied with the young and fat gulls which he has raised.'

"I have been unable to find any other published account of the utilization of the young of this species as food. While the *Grampus* was at Little-Seldom-Come-By Harbor, Fogo Island, I had an opportunity of examining a pen of these birds, which are kept in the same manner as one keeps pigs. The birds, of which there were eight of different sizes, belonged to an apparently prosperous fisherman. A corner of the garden had been converted into a pen about 5 feet square. Wishing to obtain a specimen of the young, I made known to the good housewife my reasons for desiring one, but she simply could not understand that I wanted it as a specimen, so the husband was

called in and the matter explained. After considerable talk and explanation, and the promise on my part that if they would visit the vessel I would be only too glad to recompense them with some powder and shot, I succeeded in obtaining their consent to select a specimen. I doubt if to this day they have been able to comprehend my reasons for desiring the specimen.

"The birds are fed mostly on fish offal; in fact, nothing comes amiss to them, their ability to swallow being only limited by their size and the extent to which they can expand their jaws. As a consequence, they become very fat and tame, following one about like a dog, and occasionally going to the water and helping themselves to what they can find, but invariably returning to their homes. In January and February, when other food is scarce, the gulls are killed and return to the sometimes famished fishermen and their families, in another and more palatable form, some of that abundance which could not be otherwise utilized during the fishing season."

Larus delawarensis Ord.

RING-BILLED GULL.

Larus delawarensis Ord, Guthrie's Geog. 2d Am. ed. 1815, 319.—Lawr. in Baird's B. N. Am. 1858, 846.—Baird, Cat. N. Am. B. 1859, No. 664.—Coues, Key, 1872, 303; 2d ed. 1884; Check List, 1873, No. 548; 2d ed. 1882, No. 778; B. N. W. 1874, 636.—Ridgw. Orn. 40th par. 1877, 638; Nom. N. Am. B. 1881, No. 669; Man. N. Am. B. 1887, 32.—Saunders, P. Z. S. 1878, 176.—B. B. & R. Water B. N. Am. ii, 1884, 244.—A. O. U. Check List, 1886, No. 54.

Larus canus Bonap. Specc. Comp. 1827, 69 (*nec* Linn.).

?Larus argentatoides "Brehm," Bonap. Synop. 1828, 360 (*nec* Brehm).

Larus zonorhynchus Richards. F. B.-A. ii, 1831, 421.—Aud. Orn. Biog. iii, 1835, 98; v, 1839, 638, pl. 212; Synop. 1839, 327; B. Am. vii, 1844, 152, pl. 446.

Gavina brachii Bonap. Naum. iv, 1854, 212.

Larus zonorhynchus, var. *mexicanus* Bonap. Consp. ii, 1857, 224.

Hab. North America at large, breeding "from the northern tier" of the United States northward, and wintering from the United States (at large) to Cuba and Mexico.

Sp. Char. Smaller than *L. californicus*, the bill more slender, and without red spot, the mantle much paler, the iris yellow, and feet greenish yellow in the adult. *Adult, in summer:* Mantle pale pearl-blue (much as in *L. argentatus*, much paler than in *L. brachyrhynchus* or *L. canus*), the secondaries and tertials passing terminally into pure white. Outer primary black, with a white space 1.25 to 1.50 inches long near the end, involving both webs, the shaft, however, black; second quill similar, but with the white space smaller, and the extreme tip also white; third, with the basal half pale pearl-gray, and the apical white spot larger; next, similar, but the subterminal black more restricted, the line of demarkation between it and the pale pearl-gray still more sharply defined; fifth, pale pearl-gray, passing terminally into white, but crossed near the end by a wide band of black, about .75 of an inch wide; sixth quill pale pearl-gray, passing into white terminally, and marked near the end by a more or less imperfect black spot; remaining quills pale pearl-

gray, passing terminally into white, and without a trace of black. Bill greenish yellow, crossed near the end by a blackish band, the tip sometimes tinged with orange; rictus and eyelids vermilion-red; interior of mouth rich orange-red, more intense posteriorly; iris clear pale yellow, sometimes tinged with greenish; claws black.[1] *Adult, in winter:* Similar, but the head and neck, except beneath, streaked with brownish gray. *Young, first plumage:* Above, brownish dusky, the feathers bordered with pale grayish buff; primaries blackish dusky, the inner quills bluish gray basally, and tipped with white; secondaries bluish gray on basal half, dusky black terminally where edged with white; basal two thirds of the tail pale gray, more whitish basally, mottled with deeper grayish; terminal third dusky black, narrowly tipped with white. Lower parts white, spotted laterally with grayish brown. "Bill black, base of lower mandible and edges of the upper, toward the base, livid flesh-color; edges of eyelids livid blue; iris hazel; feet purplish gray, claws brownish black" (AUDUBON).

Length, about 18.00–20.00 inches; wing, 13.60–15.75 (average, 14.45); culmen, 1.55–1.75 (1.64); depth of bill through angle, .50–.65 (.56); tarsus, 1.90–2.45 (2.14); middle toe, 1.30–1.60 (1.46). [Sixteen adults.]

Like the Herring Gull (*L. argentatus smithsonianus*), this is a common species throughout eastern North America, the northern border of the United States being, approximately, the southern limit of its summer home, and the northern limit of its winter range. Its habits are essentially like those of its larger relative.

Larus atricilla Linn.

LAUGHING GULL.

Popular synonyms. Black-headed Gull; Apipisca grande de alas largas (Mexico); Gaviota (Mexico).

Larus atricilla LINN. S. N. ed. 10, i, 1758, 136; ed. 12, i, 1766, 225 (based on *Larus major* Catesb. i, 89, but also includes the European species, *L. ridibundus* LINN.).—NUTT. Man. ii, 1834, 291.—AUD. Orn. Biog. iv, 1838, 118, pl. 314; Synop. 1839, 324; B. Am. vii, 1844, 136, pl. 443.—COUES, Key, 1872, 315; Check List, 1873, No. 554.—SAUNDERS, P. Z. S, 1878, 194.—RIDGW. Nom. N. Am. B. 1881, No. 673; Man. N. Am. B. 1887, 35.—B. B. & R. Water B. N. Am. ii, 1884, 254.—A. O. U. Check List, 1886, No. 58.

Larus (*Chroicocephalus*) *atricilla* BRUCH, J. f. O. 1853, 106.—COUES, B. N. W. 1874, 650.

Chroicocephalus atricilla LAWR. in Baird's B. N. Am. 1858, 850.—BAIRD, Cat. N. Am. B. 1859, No. 667.—COUES, Proc. Acad. Nat. Sci. Phila. 1862, 310; 2d Check List, 1882, No. 786.

Larus ridibundus WILS. Am. Orn. ix, 1814, 89, pl. 74, fig. 4 (not of LINN.).

Larus plumbiceps BREHM, Lehrb. 722 (GRAY).

Larus (*Atricilla*) *megalopterus* BRUCH, J. f. O. 1855, 287.

Atricilla catesbœi BONAP. Naumannia, 1854, 212.

Atricilla minor BONAP. l. c.

Atricilla macroptera BONAP. l. c.

Larus (*Atricilla*) *micropterus* BRUCH, t. c. 288.

[1] "*Adult male, in summer.* Bill marked opposite the angle with a broad transverse band of brownish black, between which and the base it is light greenish yellow, the tips orange-yellow. Edges of eyelids greenish yellow; iris bright yellow. Feet greenish yellow, the webs tinged with orange, claws black" (AUDUBON).

HAB. Tropical and warm-temperate America, north to Maine, Ohio, Illinois, etc., but chiefly along the sea-coast; south to the Lower Amazon; both coasts of Mexico and Central America. Casual in Europe.

SP. CHAR. *Adult in summer:* Head and upper half of the neck (extending farther down in front than on the nape) dark slate-color, with a slight brownish tinge, darkest on the neck; an elongated white spot on each eyelid; lower half of the neck, all round, entire lower parts, upper tail-coverts, and tail, pure white, the under surface with a delicate roseate tinge in fresh specimens; mantle deep plumbeous, the secondaries and tertials broadly tipped with white. Outer five primaries black, with or without a small white apical spot, the bases of the third, fourth, and fifth slaty for a greater or less distance, this sometimes abruptly defined against the black, but oftener grading insensibly into it; remaining quills hoary plumbeous, tipped with white, the sixth sometimes with a subterminal black spot. Bill dark brownish red, terminal third of the culmen (sometimes whole tip of upper mandible) and the gonys blood-red or carmine, the two colors sometimes separated by a more or less distinct dusky bar or transverse spot; eyelids dull dark red; rictus and interior of mouth fleshy red; iris dark grayish brown; legs and feet dark reddish brown, the webs darker; claws black. *Adult in winter:* Similar, but head and neck white, the occiput and auricular region spotted or mottled with brownish gray, and the eyes more or less surrounded by the same. Bill and feet more dusky. *Young, first plumage:* Interscapulars, scapulars, and wing-coverts, grayish brown centrally, broadly bordered with pale grayish buff or clay-color; greater wing coverts ash-gray, tinged on terminal edges with pale grayish buff; secondaries dusky, abruptly tipped with white; primary coverts and primaries black, the latter narrowly tipped with white. Central portion of the rump light brownish ash; lateral and posterior portion of the rump, upper tail-coverts, and posterior ower parts, white. Basal half of the tail light ash-gray; terminal portion black, narrowly tipped with white. Head, neck, breast, and sides, nearly uniform brownish gray, darker on the occiput and nape, and more or less tinged with pale buffy beneath, especially in younger individuals; abdomen grayish white or pale brownish gray. Bill and feet dusky brownish (in skin). *Downy young:* Above, grayish fulvous, the head irregularly striped or spotted, the back, wings, and rump irregularly marbled with dusky. Lower parts light grayish fulvous, inclining to ochraceous on the breast and middle of the abdomen, which are immaculate; lateral and under parts of the head marked with several large and distinct spots of black; forneck, sides, flanks, and anal region dull fulvous-grayish, faintly mottled with darker. Bill dull light brown; legs and feet dull dusky brown.

Total length, about 16.50 inches; wing, 13.00; tail, 5.00; culmen, 1.75; depth of bill through nostrils, 45; tarsus, 2.00; middle toe with claw, 1.50.

Essentially a coast bird, the Laughing Gull is probably only an irregular or casual visitor to the Mississippi Valley. According to Professor Cooke a few pass up the Mississippi during the summer as far as southern Illinois, while it was recorded by Mr. Powell at Alden, Nebraska, in July, 1880. May not, however, Franklin's Gull (*L. franklinii*) have been mistaken for it?

Larus franklinii Sw. & Rich.

FRANKLIN'S GULL.

Popular synonyms. Franklin's Rosy Gull; Hooded Gull; Apipisca (Mexico).

Larus atricilla SABINE, App. Franklin's Polar Sea, 1823, 695 (not of LINN. 1758).

Larus franklinii SW. & RICH. F. B.-A. ii, 1831, 424, pl. 71.—AUD. Orn. Biog. v, 1839, 324; Synop. 1839, 325; B. Am. vii, 1844, 145.—COUES, Key, 1872, 316; Check List, 1873, No. 555.—SAUNDERS, P. Z. S. 1878, 195.—RIDGW. Nom. N. Am. B. 1881, No. 674; Man. N. Am. B. 1887, —B. B. & R. Water B. N. Am. ii, 1884, 258.—A. O. U. Check List, 1886. No. 59.

Larus (Chroicocephalus) franklinii BRUCH, J. f. O. 1855, 289.—COUES, B. N. W. 1874, 653.
Chroicocephalus franklinii LAWR. in Baird's B. N. Am. 1858, 851.—BAIRD, Cat. N. Am. B. 1859, No. 668.—COUES, 2d Check List, 1882, No. 787.
Larus pipixcan WAGL. Isis, 1841, 515.
Larus cucullatus LICHT. Nomencl. 1854, 98 (no description). (Mexico.)
Larus (Chroicocephalus) cucullatus BRUCH, J. f. O. 1855, 290.—LAWR. in Baird's B. N Am. 1858, 851.—BAIRD, Cat. N. Am. B. 1859, No. 669.
Larus cinereo-caudatus PHIL. & LANDB. Wiegm. Archiv. 1861, 293 (Chili).
? Larus (Chroicocephalus) kittlitzii BRUCH, J. f. O. 1853, 104.
Chroicocephalus schimperi BRUCH, l. c. (not of SCHLEG., 1863, which=*L. saundersi* SWINHOE).

HAB. The interior of North America, chiefly the Mississippi Valley and northward, breeding from Dakota, Minnesota, etc., northward; Central and South America, during migrations, as far as Chili; part of the West Indies.

SP. CHAR. *Adult, in summer:* Head and upper part of the neck plumbeous-black (more plumbeous anteriorly); an elongated white spot on each eyelid; lower part of the neck (all round), entire lower parts, lower part of the rump, and upper tail-coverts snow-white, the neck and lower parts with a deep tinge of delicate rose-pink in fresh specimens. Mantle deep bluish plumbeous, a little lighter than in *L. atricilla*, the secondaries and tertials broadly tipped with white. Tail white, the four to six central feathers tinged with pale grayish blue, deepest on the intermediæ. Primaries bluish gray, the shafts white, the five outer quills marked with a subterminal space of black, varying in extent from nearly 2.00 inches on the second quill to about .50 on the fifth, each quill broadly tipped with white, this occupying on the first about 1.50 inches of the terminal portion, on the rest less than .50 of an inch, the bluish gray of the basal portion of the quills becoming nearly or quite white adjoining the black, and the shaft of the black portion also black; remaining quills light grayish blue, broadly, but not abruptly, tipped with white, the sixth sometimes marked with a subterminal black spot or bar. Bill deep red, with a more or less distinct darker subterminal band; eyelids red; feet deep red. *Adult, in winter:* Similar, but head and neck white, the occiput, with orbital and auricular regions, grayish dusky. Bill and feet brownish, the former tipped with orange-reddish. *Young, first plumage:* Top and sides of the head (except forehead and lores), back, and scapulars grayish brown, the longer scapulars bordered terminally with pale grayish buff; wing-coverts bluish gray, tinged with grayish brown; secondaries dusky, edged with pale grayish blue, and broadly tipped with white; primaries dusky, the innermost ones more plumbeous, all rather broadly tipped with white. Central portion of the rump uniform light bluish gray; lateral and posterior portions of the rump, upper tail-coverts, entire lower parts, forehead, lores, and eyelids white. Bill brownish, dusky terminally; feet brown (in skin).

Total length, about 14.00 inches; extent, 35.00; wing, 11.25; culmen, 1.30; depth of bill through nostrils, .35; tarsus, 1.60; middle toe, with claw, 1.60.

Larus philadelphia (Ord).

BONAPARTE'S GULL.

Sterna philadelphia ORD, Guthrie's Geog. 2d Am. ed. ii, 1815, 319.
Chroicocephalus philadelphia LAWR. in Baird's B. N. Am. 1858, 852.—BAIRD, Cat. N. Am. B. 1859, No. 670.—NEWTON, P. Z. S. 1871, 27, pl. 4, fig. 6 (egg).—COUES, Proc. Acad. Nat. Sci. Phila. 1862, 310; 2d Check List, 1882, No. 788.—RIDGW. Orn. 40th Par. 1877, 639.
Larus philadelphia GRAY, List Brit. B. 1863, 235 (Great Britain).—COUES, Key, 1872, 316; Check List, 1873, No. 556.—B. B. & R. Water B. N. Am. ii, 1884, 260.—A. O. U. Check List, 1886, No. 60.—RIDGW. Man. N. Am. B. 1887, 36.

Larus philadelphiæ SAUNDERS, P. Z. S. 1878, 206.—RIDGW. Nom. N. Am. B. 1881, No. 675.
Larus (Chrœcocephalus) philadelphia COUES, B. N. W. 1874, 655.
Larus minutus SABINE, App. Franklin's Voy. 1823, 696.—SW. & RICH. F. B.-A. ii, 1831, 426 (not of PALL. 1776).
Larus capistratus BONAP. Specc. Comp. 1828, 69 (not of TEMM. 1820).
? *Larus melanorhynchus* TEMM. Pl. Col. livr. 85, pl. 504 (1830; Chili).
Larus bonapartii SW. & RICH. F. B.-A. ii, 1831, 425, pl. 72.—NUTT. Man, ii, 1834, 294.—AUD. Orn. Biog. iv, 1838, 212, pl. 324; Synop. 1839, 323; B. Am. vii, 1844, 131, pl. 452.
Larus (Chroicocephalus) subulirostris "BP," BRUCH, J. f. O. 1853, 105 (type in Mus. Mainz).

HAB. The whole of North America, but no valid record of its occurrence south of the United States, except Bermudas (HURDIS). Breeds from Manitoba (probably also northern Minnesota) northward.

SP. CHAR. *Adult, in summer:* Head and upper part of the neck dark plumbeous, the eyelids marked by an elongated white spot. Lower part of the neck, entire lower parts, tail, upper tail coverts, lower and lateral portions of the rump, border of the wing, alulæ, primary coverts, and greater portion of the primaries snow white, the neck and lower parts with a delicate rose-pink blush in fresh specimens. Mantle, including upper and middle portions of rump, delicate light pearl-blue. Three outer primaries chiefly white, the outer web of the exterior quill, and the terminal portion of all, deep black; fourth quill similar to the third, but the inner web pale grayish blue; fifth and sixth quills pale grayish blue, with a large subterminal black space, and tipped with white (third and fourth quills also marked with a small white apical spot); remaining quills pale grayish blue, without white tips, but marked near the end, usually on inner web only, with a black spot. Bill deep black; iris dark brown; interior of mouth, with legs and feet, rich clear orange-red;[1] claws black. *Adult, in winter:* Similar, but head and neck white, the occiput tinged with grayish, and the auricular region marked by a spot of dusky gray. Legs and feet flesh-color. *Young, first plumage:* Sides and under part of head and neck, entire lower parts, upper tail coverts, and basal three fourths of the tail pure white; crown, occiput, and upper part of the back brownish gray; a dusky grayish spot on the auricular region; scapulars and posterior interscapulars grayish brown, tipped with pale buff; central area of lesser wing-covert region dusky brownish gray; rest of wing-coverts, edges of secondaries, greater portion of inner primaries, with upper and central portions of the rump, light grayish blue; band across end of tail black or dusky, the tip narrowly whitish. Outer primary with the entire outer web, and a stripe along the inner next the shaft, with the end, black, the remaining portion white; second and third quills similar, but the white successively more restricted; fourth, bluish white on both webs (inner web more bluish), the subterminal portion black for more than an inch, the tip with a small white spot; remaining quills similar, but deeper bluish gray. Bill dusky; feet pale brownish (in skin). *Young, second year:* Similar to the adult in winter plumage, but central lesser wing-coverts dusky, tail crossed by a subterminal band of dusky brown, and primaries marked as in the first plumage.

Total length, about 13.00–14.00 inches; extent, 32.00; wing, 10.25; culmen, 1.20; depth of bill through nostrils, .25; tarsus, 1.40; middle toe with claw, 1.40.

This pretty little gull, the smallest of the American species, is a transient migrant in Illinois, occasionally wintering in the southern portion of the State.

[1] In some very high-colored specimens the *feathers* immediately surrounding the naked rim of the eyelids are fine orange-red.

Genus **XEMA** Leach.

Xema "Leach," Ross's Voy. App. 1819, p. lvii. Type, *Larus sabinii* Sab.

Gen. Char. Tail emarginate, or slightly forked; otherwise like the smaller species of *Larus*.

This genus contains a single species, the Fork-tailed or Sabine's Gull (*X. sabinii*). Another species, the Swallow-tailed Gull (*Creagrus furcatus*), of the Galapagos Archipelago has often been referred to the genus, but the differences of structure between the two are so marked as to require its reference to a different genus. (See *Proc. U. S. Nat. Mus.*, Vol. XII., 1889, p. 117.)

Xema sabinii (Sabine).

SABINE'S GULL.

Popular synonym. Fork-tailed Gull.

Larus sabinii J. Sab. Trans. Linn. Soc. xii, 1818, 520, pl. 29.

Xema sabini Edw. & Beverl. App. Ross's Voy. Baff. Bay, 4to ed. 1819, lvii.

Xema sabinii Lawr. in Baird's B. N. Am. 1858, 857.—Baird, Cat. N. Am. B. 1859, No. 630.—Saunders, P. Z. S. 1878, 209.—Coues, 2d Check List, 1882, No. 790.—B. B. & R. Water B. N. Am. ii, 1884, 269.—A. O. U. Check List, 1886, No. 62.—Ridgw. Man. N. Am. B. 1887, 38.

Xema sabinei Coues, Proc. Acad. Nat. Sci. Phila. 1862, 311; Key, 1872, 317; Check List, 1873, No. 558; B. N. W. 1874, 660.—Ridgw. Nom. N. Am. B. 1881, No. 677.

Xema collaris "Schreibers," Ross, in App. Ross's Voy. Baff. Bay, ii, 8vo. ed. 1819, 164 (nec Schreibers, = *Rhodostethia rosea*! Cf. Saunders, P. Z. S. 1878, p. 209).

Hab. Circumpolar Regions; in winter migrating south, in America, to Massachusetts, New York, the Great Lakes, Kansas, and the Great Salt Lake, Utah. Very abundant in Alaska. Bermudas, one instance (Saunders). Macabi Island, coast of Peru, lat. 8° S. (one specimen, *fide* Saunders, P. Z. S. 1878, p. 210).

Sp. Char. *Adult, in summer:* Head and upper part of neck plumbeous, bounded below by a well-defined collar of black, widest behind; lower part of the neck, entire lower parts, tail, upper tail-coverts, and lower part of rump snow-white, the lower parts faintly tinged with delicate rose-pink in some freshly killed specimens. Mantle deep bluish gray (nearly the same shade as in *Larus franklinii*) the secondaries pure white, becoming gradually pale grayish blue toward bases; most of the exposed portion of the greater coverts also white, forming, together with the secondaries, a conspicuous longitudinal white stripe on the closed wing. Four outer primaries black, broadly tipped with white, the inner webs broadly margined with the same; fifth quill with the greater part of the inner web, and about 1.75 inches of the terminal portion of the outer, white, the remainder black; remaining quills white; outer border of the wing, from the carpal joint back to the primary coverts, including the latter and the alulæ, uniform black. Bill black, tipped with yellow; eyelids red; iris brown; feet dull lead-color, claws black" (L. M. Turner, M. S.). *Adult, in winter:* Similar to the summer plumage, but head and neck white, except occiput, nape, and auricular region, which are dull dusky plumbeous. *Young, first plumage:* Crown, nape, back, scapulars, wing-coverts, and rump brownish gray, each feather bordered terminally with light fulvous or pale grayish buff, this fulvous border preceded on the tertials,

longer scapulars, etc., by a dusky internal sub-border; greater wing-coverts and secondaries white, as in the adult; primaries much as in the adult. Tail white, with a broad subterminal band of black, the tip narrowly white or pale fulvous; upper tail-coverts and entire lower parts white. Bill dusky, brownish toward the base; feet light brownish (in the skin).

Wing, about 10.75 inches; culmen, 1.00; depth of bill through angle, .30; tarsus, 1.25; middle toe and claw, 1.25.

According to published records only one specimen of this Arctic gull has been observed in Illinois, and that, unfortunately, was not secured. It was shot by Mr. E. W. Nelson* on the shore of Lake Michigan, April 1, 1873, was in breeding plumage, but falling beyond his reach, was drifted off from the shore by the wind.

Subfamily STERNINÆ.—The Terns.

Genus GELOCHELIDON Brehm.

Gelochelidon Brehm, Naturg. Vög. Deutschl. 1831, 774. Type, *G. meridionalis* Brehm, =*Sterna nilotica* Hasselq.

Gen. Char. Bill short and stout, with strongly convex upper and lower outline, its depth at the base equal to one third the length of the exposed culmen; gonys shorter than outer toe, without claw; tail nearly half as long as the wing, forked for less than one third its length. Color of adult pale pearl-gray above, with top of head and hind-neck deep black, lower parts white; bill and feet black.

The genus includes, so far as known, a single species, the Gull-billed Tern (*G. nilotica*), which occurs in Europe, Asia, Africa, and Australia, as well as America.

Gelochelidon nilotica (Hasselq.)

GULL-BILLED TERN.

Popular synonym. Marsh Tern.

Sterna nilotica Hasselq. Reise nach Pal. Deutsche Ausg. 1762, 325.

Gelochelidon nilotica Stejn. Auk, i, Oct. 1884, 366.—A. O. U. Check List, 1886, No. 63.—Ridgw. Man. N. Am. B. 1887, 38.

Sterna anglica Montague, Orn. Dict. Suppl. 1813.—Nutt. Man. ii, 1834, 269.—Aud. Orn. Biog. v, 1839, 127, pl. 410; Synop. 1839, 316; B. Am. vii, 1844, 81, pl. 430.—Coues, Key, 1872, 319; Check List, 1873, No. 560; 2d ed. 1882, No. 792.—Ridgw. Nom. N. Am. B. 1881, No. 679.—B. B. & R. Water B. N. Am. ii, 1884, 277.

Gelochelidon anglica Bonap. Comp. List, 1838, 61.—Coues, Proc. Acad. Nat. Sci. Phila. 1862, 536 (critical).

Sterna (*Gelochelidon*) *anglica* Coues, B. N. W. 1874, 664.

Sterna aranea Wils. Am. Orn. viii, 1814, 143, pl. 72, fig. 6.—Lawr. in Baird's B. N. Am. 1858, 859.—Baird, Cat. N. Am. B. 1859, No. 681.

*Recorded in the *Bulletin of the Nuttall Ornithological Club*, Vol. i, 1876, p. 41.

Sterna risoria BREHM, Lehrb. 1823. 683; Beitr. iii, 650.
? Sterna macrotarsa GOULD, Proc. Zoöl. Soc. Lond. pt. v, 1837, 26; B. Austr. Suppl.
Sterna affinis HORSF. (*fide* BLAS.).
Gelochelidon palustris MACGIL. Man. ii, 1842, 237.
Gelochelidon balthica, agraria, meridionalis BREHM, Vög. Deutschl. 1831, 772, 773, 774.

HAB. Nearly cosmopolitan, but in North America confined to the Eastern Province, and rare away from the coast; the greater part of tropical America, south to Brazil; both coasts of Central America; Bermuda?

SP. CHAR. *Adult, in summer:* Pileum and nape deep black; upper parts, including the rump, upper tail-coverts, and tail, delicate pale pearl-gray, the primaries more hoary, and usually darker; inner webs of primaries ash-gray, with a broad white space from the edge more than half way to the shaft, but not extending to the ends of the quills. Rest of the plumage pure white. Bill wholly deep black; interior of mouth flesh-color; iris dark brown; legs and feet dark walnut-brown, the soles pale pinkish brown; claws black. *Adult, in winter:* Similar, but whole head and neck white, the nape tinged with grayish, the auriculars darker grayish, as is also a crescentic space immediately in front of the eyes. *Young, first plumage:* Above, pale pearl-gray, the feathers more or less tipped with light clay-color, this sometimes almost uniform over the back and scapulars, where the feathers are bluish only beneath the surface; a blackish crescentic spot immediately in front of the eye, and a dusky grayish suffusion on the auriculars, forming a more or less distinct postocular stripe. Lower parts entirely pure white. Rump, upper tail-coverts, tail, and wing-coverts nearly uniform pale pearl-gray; remiges deeper silvery gray, the secondaries and inner primaries tipped with white; rectrices darker subterminally, and tipped with white or pale ochraceous-buff. Pileum, back, and scapulars sometimes streaked with dusky, oftener immaculate. Bill dusky brownish, the mandible dull orange-brown, except terminally; legs and feet varying from dull reddish brown to dusky brown, the soles more reddish. *Downy young:* Above, light grayish buff, with several large and tolerably well-defined dusky spots on the hind half of the head, most distinct on the latero-occipital region; a distinct longitudinal stripe of dusky down each side of the lower nape and upper back; wings, rump, and flanks, with large, rather distinct, spots of dusky. Lower parts white, the sides of the throat faintly tinged with grayish. Bill dull brownish, the mandible more orange; legs and feet dull brownish orange.

Total length, about 13.00 to 15.25 inches; extent, 33.00 to 37.50; wing, 11.75–12.25; tail, 5.50; depth of fork, 1.50–1.75; culmen, 1.40; depth of bill through base, .45; tarsus, 1.30; middle toe, with claw, 1.10.

The Gull-billed Tern breeds abundantly along the Atlantic coast of the United States, especially on the islands off shore, which it inhabits in company with the Common Tern (*S. hirundo*), Forster's Tern (*S. forsteri*), the Least Tern (*S. antillarum*), the Black Skimmer (*Rynchops nigra*), and the Black-headed Gull (*Larus atricilla*), in some localities outnumbering any of the before-mentioned species. In those localities which I have visited its nest was usually placed on the dry sand, just beyond reach of the surf, but not unfrequently at a considerable distance from the shore. It is very bold in defence of its eggs or young, darting down at an intruder with such impetuosity as almost to strike him, scolding all the while with a harsh chattering note, which may be compared to a discordant laugh.

GENUS STERNA LINNÆUS.

Sterna LINN. S. N. ed. 10, i, 1758, 137, ed. 12, i, 1766, 227. Type, by elimination, *Sterna hirundo* LINN.
Sternula BOIE, Isis, 1822, 563. Type, *Sterna minuta* LINN.
Thalasseus BOIE, Isis, 1822, 563. Type, *Sterna caspia* PALL.
Thalassea KAUP, Sk. Entw. Eur. Thierw. 1829, 97. Type, *Sterna paradisæa* BRÜNN.
Sylochelidon BREHM, Vög Deutschl. 1830, 767. Type, *Sterna caspia* LINN.
Actochelidon KAUP, Sk. Ent. Eur. Thierw. 1829, 31. Type, *Sterna cantiaca* GMEL.
Haliplana WAGL. Isis, 1832, 1224. Type, *Sterna fulignosa* GMEL.

SP. CHAR. Bill much more slender than in *Gelochelidon*, its depth through the base less than one third the length of the exposed culmen, its upper outlines never strongly curved and its lower outline always straight, or nearly so. Size exceedingly variable, the form and colors less so; tail always decidedly forked, and toes almost fully webbed, but the webs concave, or "scalloped out," anteriorly.

The above diagnosis covers several groups of species, usually ranked as subgenera, some of which are possibly entitled to full generic rank, since they appear to be quite as distinct from typical *Sterna* as is *Gelochelidon*.

The species occurring in eastern North America are the following:

A Wing more than 9.00 inches.

a. Size very large (wing 15.00 inches or more); tail emarginate; occipital feathers soft and blended, not forming a crest; inner webs of primaries concolored (dusky grayish); adult, above, pale pearl-gray, beneath, white; hood wholly black in summer, wholly streaked or speckled with white in winter. (Subgenus *Thalasseus* BOIE.)

1. **S. tschegrava.** Bill very robust (the depth through the base a little less than one third the length of the culmen), deep red.

b. Size large or medium (wing 12.50–15 inches); tail deeply forked; occipital feathers pointed and somewhat lengthened, forming a short but distinct crest; inner webs of primaries bicolored (dusky in a well-defined stripe next the shaft, the inner edge broadly and abruptly white); adult, pale pearl-gray above, white beneath; pileum wholly black in spring, the forehead, lores, and centre of the crown white in the breeding season. (Subgenus *Actochelidon* KAUP.)

2. **S. maxima.** Bill stout (but depth through the base much less than one third the length of the culmen), deep orange; wing, 14.00–15.00 inches.
3. **S. sandvicensis acuflavidus.** Bill very slender, deep black, tipped with yellow. Wing, about 12.50 inches.

c. Size small (wing less than 12.00 but more than 8.00 inches); tail of adult excessively forked, with lateral feathers very narrow towards tips; occipital feathers soft and blended, not forming a crest.

¶. Upper parts pearl-gray, the whole top of head black in summer; tail white or pale pearl-gray. (Subgenus *Sterna* LINN.)

¶. Only one web of outer tail-feather entirely white.

4. **S. forsteri.** Lower parts entirely white; outer web of lateral tail-feather entirely white, the inner web usually grayish or dusky near end.
5. **S. hirundo.** Lower parts pale gray or grayish white; outer web of lateral tail-feather grayish or dusky, the inner web entirely white.

S. paradisæa. Lower parts deeper gray, almost as dark as upper parts; otherwise like *S. hirundo*, but lateral tail-feathers more elongated. *Hab.* Circumpolar districts, south in winter, in America, to northern United States (breeding as far south as coast of New England).]

§§. Both webs of outer tail-feather entirely white, or grayish white.

[7. **S. dougalli.** Lower parts delicate "peach-blossom pink" fading to pinkish white or pure white in dried skins. *Hab.* Atlantic coast of United States, West Indies, and various parts of old world.]

b. Upper parts slate-gray or sooty blackish, the forehead and sides of crown white; six to ten middle tail-feathers slaty or blackish. (Subgenus *Haliplana* WAGL.)

[8. **S. fuliginosa.** Upper parts sooty black. *Hab.* Tropical and sub-tropical coasts of both hemispheres, north to the South Atlantic (casually to New England) States.]

[9. **S. anæthetus.** Upper parts slate-gray, fading into white on hind-neck. *Hab.* Tropical sea-coasts, north to Florida.]

II. Wing less than 7.00 inches. (Subgenus *Sternula* BOIE.)

10. **S. antillarum.**

SUBGENUS **THALASSEUS** BOIE.

Thalasseus BOIE, Isis, 1822, 563. Type, *Sterna caspia* PALL.,=*S. tschegrava* LEPECH.
Sylochelidon BREHM, Vög. Deutschl. 1830, 767. Same type.

SUBGEN. CHAR. Largest and most powerful of the Terns. Tail much less than half as long as the wing, forked for less than one fifth of its total length; feathers of occiput normal (short and blended, not forming a crest); depth of bill at base equal to nearly one third the exposed culmen; inner webs of primaries unicolored (plain gray or slaty).

Sterna tschegrava Lepechin.

CASPIAN TERN.

Popular synonym. Gannet (coast Virginia).

Sterna tschegrava LEPECH. Nov. Comm. Petrop. xiv, 1770, 500, pl. 13, fig. 2.—A. O. U. Check List, 1886, No. 64.—RIDGW. Man. N. Am. B. 1887, 39.

Sterna caspia PALL. Nov. Comm. Petrop. xiv, 1770, 582.—GMEL. S. N. i, pt. ii, 1788, 603.—LAWR. in Baird's B. N. Am. 1858, 859.—BAIRD, Cat. N. Am. B. 1858, No. 682.—COUES, Key, 1872, 319; Check List, No. 591; 2d ed. 1882, No. 793.—RIDGW. Nom. N. Am. B. 1881, No. 680.—B. B. & R. Water B. N. Am. ii, 1884, 280.

Thalasseus caspius BOIE, Isis, 1822, 563.—COUES, Proc. Acad. Nat. Sci. Phila. 1862, 537.—ELLIOT, Illustr. Am. B. pl. 56.

Sterna (Thalasseus) caspia COUES, B. N. W. 1874, 667.

Sterna caspica STARRM. Mus. Carls. iii, 1788, pl. 62.

Sterna megarhynchos MEYER, Tasch. Deutsch. Vög. ii, 1810, 457.

Sylochelidon strenuus GOULD, P. Z. S. 1846, 21; B. Austr. vii, 1848, pl. 22 (Australia).

Thalassites melanotis SW. B. W. Afr. 1837, 253 (type in Cambridge Mus.; examined by H. S.).

Sylochelidon balthica et *schillingii* BREHM, Vög. Deutschl. 1831, 769, 770.

Sterna major ELLMAN, Zoöl. 1861, 7472.

Thalasseus imperator COUES, Proc. Acad. Nat. Sci. Phila. 1862, 538 (text; Labrador).

Sterna caspia, var. *imperator* RIDGW. Ann. Lyc. N. Y. x, 1874, 391.

Sterna regia (nec GAMB.) RIDGW. Orn. 40th Par. 1877, 639 (Humboldt Lake, Nevada).

HAB. Palæarctic Region. North America in general, but very irregularly distributed; breeding in Labrador, along the Arctic coast, on islands in Lake Michigan and along coast of Virginia and Texas! Humboldt Marshes, Nevada, numerous; coast of California; Australia.

SP. CHAR. Largest of the Terns (wing not less than 15.00 inches). Bill very robust, reddish; tail short and but slightly forked; inner webs of primaries wholly dark slaty. *Adult, in summer:* Entire pileum, including upper half of lores, deep black, the lower eyelid with a white crescentic spot. Upper parts very pale pearl-gray, fading insensibly to white on the upper tail-coverts, the tail bluish white; outer surface of the primaries light hoary ash, their inner webs uniform slate or dark hoary gray. Rest of the plumage snow-white. Bill deep coral-red, with a dull suffusion subterminally, the tip orange or yellowish; iris dark brown; legs and feet deep black. *Adult, in winter:* Similar, but the black of the head streaked with white. *Young, first plumage:* Similar to the adult, but with the following differences: Pileum (including occiput and upper two thirds of lores) grayish white, thickly streaked with dull black; side of head with a uniform dull black bar, beginning before and beneath the eye and extending back over upper portion of auriculars; lower portion of lores and auriculars grayish white, mottled with darker grayish. Mantle pale pearl-gray, sparsely marked with irregular spots, mostly inclining to crescentic or V-shaped form, of brownish dusky, the wing-coverts, however, nearly immaculate; the markings largest on longer scapulars and terminal portion of tertials; primaries hoary gray, with white shafts, the shorter ones margined with white; rump and upper tail-coverts immaculate pearly white; rectrices hoary gray, distinctly spotted with blackish toward tips. Rest of plumage plain white. Bill dull orange (in dried skin), dusky subterminally; feet brownish (in skin). (No. 93,033, Warsaw, Ill., Sept. 21, 1883; CHARLES K. WORTHEN.) *Downy Young:* Above, grayish white, the down of the head dusky grayish at the base; back and rump finely and indistinctly mottled with grayish; throat and foreneck uniform pale grayish; remaining lower parts, including the chin, immaculate white. Bill, legs, and feet dull orange, the former with the tip blackish.

Total length, about 20.00–22.50 inches; extent, 51.00–55.50; wing, 15.00–17.40; tail, 5.30–6.75, depth of its forking, .75–1.60; culmen, 2.48–3.10; depth of bill through base, .75–.95; tarsus, 1.60–1.95; middle toe, 1.15–1.40.

The great Caspian Tern is a bird of very irregular distribution, even its breeding grounds being scattered about at distant points, not only in North America but other parts of the world as well. In North America it has been found breeding at several localities in the Arctic district, on islands off the coast of Virginia, in Lake Michigan and on the coast of Texas; and the writer found it to be more or less common about Washoe Lake and the Humboldt Marshes, Nevada, and the Great Salt Lake, Utah, where it was no doubt breeding.*

Unlike most other terns, and conspicuously unlike the almost equally large Royal Tern (*S. maxima*), the Caspian Tern appears to breed in isolated pairs instead of large colonies, its nest being usually far removed from that of any other bird, and consisting merely of a shallow depression scooped in the sand, in which its two eggs are laid, with little if any lining, though a few grass, or sedge, blades or other vegetable substance are sometimes added. It is very bold in defence of its eggs or young, darting impetuously at the intruder, uttering meanwhile hoarse barking or snarling cries.

* The species was given in the author's "Ornithology of the Fortieth Parallel" as the Royal Tern, but I am now quite certain that it was this species instead.

SUBGENUS ACTOCHELIDON KAUP.

Actochelidon KAUP, Sk. Ent. Eur. Thierw. 1829, 31. Type, *Sterna cantiaca* GMEL.,= *S. sandvicensis* GMEL.

SUBGEN. CHAR. Next to *Thalasseus* the largest of the Terns. Tail more than half as long as the wing, forked for at least half its length; feathers of occiput lengthened, pointed, forming a distinct crest; depth of bill at base much less than one third the length of exposed culmen; inner webs of primaries bicolored (dusky or slaty next to shaft, white along edge).

Sterna maxima Bodd.

ROYAL TERN.

Popular synonyms. Gannet, or Gannet Striker, (Coast of Virginia); Redshanks (Florida*); Gaviota (Mexico).

La Grande Hirondelle de Mer, de Cayenne BUFF. Ois. viii, 346.

Hirondelle de Mer, de Cayenne, BUFF. Pl. Enl. 988.

Sterna maxima BODD. Tabl. P. E. 1783, 58 (ex Pl. Enl. 988).—SCL. & SALV. P. Z. S. 1871, 567 (critical).—SAUNDERS, P. Z. S. 1878, 655 (do.).—COUES, 2d Check List, 1882, No. 794.—B. B. & R. Water B. N. Am. ii, 1884, 284.—A. O. U. Check List, 1886, No. 65.—RIDGW. Man. N. Am. B. 1887, 40.

Sterna cayennensis GMEL. S. N. i, pt. ii, 1788, 604.

Sterna cayana LATH. Ind. Orn. ii, 1790, 804, No. 2.—NUTT. Man. ii, 1834, 268.—AUD. Orn. Biog. iii, 1835, 505; v, 1839, 639, pl. 273; Synop. 1839, 316; B. Am. vii, 1844, 76, pl. 429.

Sterna galericulata LICHT. Verz. Doubl. 1823, 81 (type in Berlin Mus.; determined by H. S.).

Sterna erythrorhynchus WIED, Beitr. iv, 1833, 857.

Sterna cristata SWAINS. B. W. Afr. ii, 1837, 247. pl. 30 (type in Cambridge Mus.; examined by H. S.).

Sterna regia GAMB. Proc. Acad. Nat. Sci. Phila. 1848, 228.—LAWR. in Baird's B. N. Am. 1858, 859.—BAIRD, Cat. N. Am. B. 1859, No. 683.—COUES, Key, 1872, 319; Check List, 1873, No. 562.—RIDGW. Nom. N. Am. B. 1881, No. 681.

Thalasseus regius GAMB. Journ. Acad. Nat. Sci. Phila. i, 2d ser. 1849, 228.—COUES, Proc. Acad. Nat. Sci. Phila. 1862, 539 (critical).

Sterna (Thalasseus) regia COUES, B. N. W. 1874, 669.

"*Sterna bergii*" IRBY, Orn. Str. Gibr. 1875, 209 (specimen examined by H. S.). Not *S. bergii*, LICHT. 1823.

HAB. Tropical and warm-temperate parts of America, north to Long Island, Massachusetts, Great Lakes, Utah (?), Nevada (?), and coast of California; South to Brazil and Peru. West coast of Africa, north to Tangiers (DALGLEISH, "Auk," January, 1884, p. 97).

SP. CHAR.* Nearly as large as *S. tschegrava*. Bill deep orange-red or orange. Tail quite deeply forked. *Adult, in spring:* Entire pileum, including occipital crest and upper half of the lores, deep black. Upper parts pale pearl-gray (about as in *S. tschegrava*), becoming white on the rump and upper tail-coverts. Tail grayish white, tinged with pearl-gray. Outer webs of primaries pale silvery gray, the outer quill darker; inner webs slaty in a broad stripe next the shaft, the inner portion abruptly white, the dusky extending anteriorly near the inner edge of the web, except on the outer quill. Bill deep orange-red; iris dark brown; legs and feet deep black. *Adult, in summer:* Similar, but the forehead, lores, and fore part of crown white. Bill uniform deep orange-chrome, paler at tip; edges of eyelids black; iris dark brown; legs and feet deep black. *Adult, in winter:* "*Young of*

* *Fide* W. E. D. SCOTT, in *The Auk*, Oct., 1890, p. 306. (But why?)

the year in August: Bill considerably smaller and shorter than in the adult, its tip less acute, and its angles and ridges less sharply defined, mostly reddish yellow, but light yellowish at tip. Crown much as in the adults in winter, but the occipital crest scarcely recognizable as such. Upper parts mostly white, but the pearl-gray of the adult appearing in irregular patches, and the whole back marked with small irregularly shaped, but well-defined spots of brown. On the tertials the brown occupies nearly the whole of each feather, a narrow edge only remaining white. Lesser wing-coverts dusky plumbeous. Primaries much as in the adults, but the line of demarkation of the black and white wanting sharpness of definition. Tail basally white, but soon becoming plumbeous, then decidedly brownish, the extreme tips of the feathers again markedly white. Otherwise as in the adults" (COUES).

Total length, about 18.00 to 20.00 inches; extent, 42.00 to 44.00; wing, 14.00–15.00; tail, 6.00–8.00; the depth of its fork, about 3.00–4.00; culmen, 2.50–2.75; depth of bill through base, 70; tarsus, 1.37; middle toe, with claw, 1.40.

It is very questionable whether the bird with entirely black pileum can be regarded as in full breeding-plumage. In July, 1880, I found a colony consisting of several thousands of this species breeding on Cobb's Island, Va. Dozens were shot as they flew from their eggs, and *not one* could be secured, or even observed, which did not have the forehead and fore part of the crown white. All the eggs were quite fresh; but it is barely possible that the birds may have previously laid in some other place, and their eggs have been taken by fishermen. It seems, therefore, most probable that the wholly black pileum represents the full spring, or perhaps pairing, dress, rather than the livery of the breeding-season.

This is a truly "royal" bird, for, though somewhat smaller than the Caspian Tern (*S. tschegrava*), it is altogether of more elegant form and more striking appearance. It is one of the most gregarious species of the family, usually nesting in immense colonies, some of which number thousands of pairs, their nests occupying a comparatively limited area, being often so closely crowded that it is difficult to walk among them without stepping on the eggs.

Although accredited to Illinois as an irregular or casual summer visitor, it is possible that individuals of the Caspian Tern have been mistaken for it.

SUBGENUS **STERNA** LINN.

Sterna LINN. S. N. ed. 10, i, 1758, 137. Type, by elimination, *S. hirundo* LINN.

SUBGEN. CHAR. Size medium (wing between 9.00 and 12.00 inches). Tail deeply forked, with lateral feathers much lengthened and narrow towards ends. Feathers of occiput normal (short and blended, not forming a crest).

Sterna forsteri Nuttall.

FORSTER'S TERN.

Popular synomyms. Havell's Tern; Striker (coast of Virginia).

Sterna hirundo Sw. & Rich. F. B.-A. ii, 1831, 412 (not of Linn.).

Sterna forsteri Nutt. Man. ii, 1834, 274 (foot-note).—Lawr. in Baird's B. N. Am. 1858, 862.—Baird. Cat. N. Am. B. 1859, No. 691.—Coues, Key, 1872, 321; Check List, 1873, No. 566; 2d ed. 1882, No. 798; Birds N. W. 1874, 676.—Henshaw, Zoöl. Wheeler's Exp. 1875, 486.—Ridgw. Orn. 40th Par. 1877, 639; Nom. N. Am. B. 1881, No. 685; Man. N. Am. B. 1887, 42.—B. B. & R. Water B. N. Am. ii, 1884, 292.—A. O. U. Check List, 1886, No. 69.

Sterna havelli Aud. Orn. Biog. v, 1839, 122, pl. 409, fig. 1 (young in winter); Synop. 1839, 318; B. Am. viii, 1844, 103, pl. 434.—Lawr. in Baird's B. N. Am. 1858, 861.—Baird, Cat. N. Am. B. 1859, No. 686.

Hab. North America generally, breeding from interior of British America south to the coast of Virginia, Illinois, Southern Texas, Nevada, California, etc.; migrating south to Brazil.

Sp. Char. *Adult, in summer:* Pileum and nape deep black. Upper parts, including rump and tail, light pearl-gray, the primaries and tail paler and more silvery, the inner webs of the outer pair of rectrices usually darker (sometimes quite dusky) for that portion beyond the tip of the next feather. Inner webs of primaries without any well-defined white space, except on two outer quills, but the edge usually more or less dusky. Tips of secondaries, anterior upper tail-coverts, sides and under part of head and neck, and entire lower parts pure white. Bill dull waxy orange, the terminal third or more blackish, with the tip usually paler; mouth orange; edges of eyelids black; iris dark brown; legs and feet very fine orange-red, the claws black. *Adult, in winter:* Similar, but the head and neck white, the occiput and nape more or less tinged with grayish, the sides of the head marked by a broad space of black surrounding the eyes and extending back over the auriculars. Tail less deeply forked than in summer, the outer rectrices broader and less elongated. *Young, first plumage:* Similar to the winter plumage, but the pileum, nape, back, scapulars, tertials, and wing-coverts overlaid by a wash of raw umber brown, chiefly on the ends of the feathers, but appearing nearly uniform on the back and crown; sides of the breast tinged with the same. Rectrices all distinctly dusky terminally, especially on inner webs (the outer web of the lateral feather hoary white to the tip), the middle feathers tipped with raw umber. Bill dusky, more brownish on basal portion of the mandible; legs and feet light brown in the dried skin. *Downy young:* Prevailing color light brownish buff, the breast and abdomen white; lower surface entirely immaculate, but upper parts coarsely and irregularly marbled with black, the sides of the head with a few scattered irregular minute markings of the same. Length, about 3.50 inches, the culmen .35 of an inch.

Total length, about 12.00 to 15.00 inches; extent, 30.00; wing, 9.50–10.30; tail, 5.00–7.70; depth of its fork, 2.30–5.00; culmen, 1.50–1.65; depth of bill through base, .35–.49; tarsus, .90–.99; middle toe, 1.05–1.15.

This is the common tern of the Mississippi Valley, and probably the only species of the genus which breeds in Illinois. Although the writer found it common and undoubtedly breeding at Sacramento, California, and at various localities in Nevada and Utah, he became intimately acquainted with its breeding habits only on Cobb's and adjoining islands, off the coast of Virginia. There, although fairly common, it was less numerous than the Common, Least, and Gull-billed Tern (*S. hirundo*, *S.*

antillarum, and *Gelochelidon nilotica*), and kept apart from them, though usually nesting in company with the Laughing Gull (*Larus atricilla*). Its nests were usually made on the tide-rows of drift-weed on marshy places, while the other terns nested in the sand or, in the case of the Least Tern, on the "shingle" beach. Its note is quite different from that of the species mentioned, but bears some resemblance to the sonorous *qua-a-a* of the Loggerhead Shrike (*Lanius ludovicianus*).

Sterna hirundo Linn.

COMMON TERN.

Popular synonyms. Wilson's Tern; Striker (coast of Virginia); Sea Swallow; Summer Gull (coast of New Jersey).

Sterna hirundo Linn. S. N. ed. 10, i, 1758, 137; ed. 12, i, 1766, 227.—Wils. Am. Orn. vii, 1813, 76, pl. 60, fig. 1.—Nutt. Man. ii, 1834, 271.—Aud. Orn. Biog. iv, 1838, 74, pl. 309; Synop. 1839, 318; B. Am. vii, 1844, 97, pl. 433.—Coues, Key, 1872, 320; Check List, 1873, No. 565; 2d ed. 1882, No. 797; B. N. W. 1874, 680.—B. B. & R. Water B. N. Am. ii, 1884. 295.—A. O. U. Check List, 1886, No. 70.—Ridgw. Man. N. Am. B. 1887, 43.

Sterna fluviatilis Naum. Isis, 1819, p. 1847-48.—Sharpe & Dresser, B. Eur. Pt. xi, (1872).—Saunders, P. Z. S. 1876, 649.

Sterna senegalensis Swains. B. W. Afr. ii, 1837, 250.

Sterna wilsoni Bonap. Comp. List, 1838, 61.—Lawr. in Baird's B. N. Am. 1858, 861.—Baird. Cat. N. Am. B. 1859, No. 689.

Hab. Palæarctic region and eastern North America, chiefly near the coast. Winters north to about 37°; breeds irregularly nearly throughout its range. Arizona; Bermudas (summer resident).

Sp. Char. *Adult, in summer:* Pileum and nape, including upper half of the lores, uniform deep black. Upper parts deep pearl-gray (much the same shade as in *paradisæa*), the border of the wing, tips of secondaries, lower part of rump, upper tail-coverts, and greater portion of the tail pure white. Lower parts pearl-gray or grayish white (much lighter than the upper parts), becoming gradually white on the under parts and sides of the head, and pure white on the crissum. Outer web of lateral tail-feather ash-gray, darker terminally, in abrupt contrast with the pure white of the inner web; outer webs of remaining rectrices, except the intermediæ, paler grayish. Outer web of outer primary blackish slate; outer surface of other primaries light silvery gray, slightly paler than the back; inner webs chiefly white, with a stripe of grayish next the shaft, this stripe abruptly defined on the first five quills, but growing gradually broader and paler toward the fifth, and extending, near the end of the feathers, a greater or less distance toward the base, but the edge itself narrowly white; five inner quills pale silvery gray, the inner webs edged with white. Bill bright vermilion, blackish terminally, except on the tomia; inside of mouth orange-vermilion; edges of eyelids black; iris very dark brown; legs and feet orange-vermilion, lighter than the bill; claws black. *Adult, in winter:* Similar, but forehead, crown, and anterior part of lores white, the vertex mixed with black; entire lower parts pure white. *Young, first plumage:* Orbital region, occiput, and nape deep black; crown mixed black and grayish white; forehead and lores, with entire lower parts, upper tail-coverts, inner webs of rectrices, and tips of secondaries, white. Upper parts pale bluish gray, the scapulars, interscapulars, and tertials tipped with pale buff, and marked with an indistinct subterminal lunule of dusky brown; anterior lesser wing-coverts dusky, forming a broad bar across the wing; primaries much as in the adult, but darker; wing-coverts paler than the back, and bordered indistinctly with white. Outer webs of rectrices grayish, deepening on

outer feathers into slate. Bill dusky brownish, the base of the mandible paler and more reddish; feet pale yellowish (in the dried skin). *Downy young:* Not distinguishable with certainty from that of *S. paradisæa* (?).

Total length, 13.00–16.00 (14.50) inches; extent, 29.00–32.00 (31.00); wing, 9.75–11.75 (10.50); tail, 5.00–7.00 (6.00); depth of its fork, about 3.50 (average); culmen, 1.25–1.50 (1.35); depth of bill through base, about .33; tarsus, .66–.87; middle toe, .75.

The Common Tern is less numerous in the interior than Forster's Tern (*S. forsteri*), but along the Atlantic coast is far more so. A few pairs, however, breed about Lake Koshkonong, in southern Wisconsin, and doubtless also in other parts of the Mississippi Valley, but to what extent is very uncertain, owing to the ease with which the species may be mistaken for Forster's Tern.

Subgenus **STERNULA** Boie.

Sternula Boie, Isis, 1822, 563. Type, *Sterna minuta* Linn.

Subgen. Char. Smallest of the Terns (wing less than 7.00 inches in the American species). Tail about half as long as wing, forked for about half its length. Adults pearl-gray above, white or pale pearl-gray beneath; top of head black, with a broad white "lunule" covering forehead and side of crown.

Sterna antillarum (Less.)

LEAST TERN.

Popular synonyms. Little Striker (coast Virginia); Sandpeter (Dry Tortugas).

Sterna minuta Wils. Am. Orn. vii, 1813, 80, pl. 70, fig. 2 (not of Linn.).—Aud. Orn. Biog. iv, 1838, 175, pl. 319; Synop. 1839, 321; B. Am. vi, 1844, 119, 439.
Sterna argentea Nutt. Man. ii, 1834, 280 (not of Max. 1820).
Sternula antillarum Less. Descr. Mam. et Ois. 1847, 256.
Sterna antillarum Coues, Proc. Acad. Nat. Sci. Phila. 1865, 552.—Scl. & Salv. P. Z. S. 1871, 571.—Saunders, P. Z. S. 1876, 661.—Ridgw. Nom. N. Am. B. 1881, No. 690; Man. N. Am. B. 1887, 46.—B. B. & R. Water B. N. Am. ii, 1884, 309.—A. O. U. Check List, 1886, No. 74.
Sterna superciliaris b. *antillarum* Coues, B. N. W. 1874, 692.
Sterna superciliaris antillarum Coues, 2d Check List, 1882, No. 801.
Sterna frenata Gamb. Proc. Acad. Nat. Sci. Phila. 1848, 128.—Lawr. in Baird's B. N. Am. 1858, 864.—Baird, Cat. N. Am. B. 1859, No. 694.
Sterna superciliaris Gundl. & Caban. J. f. O. 1857, 232 (not of Vieill.).—Coues, Key, 1872, 332; Check List, 1873, No. 570.

Hab. Temperate and tropical North America in general; south to Trinidad. Both coasts of Central America; north to Massachusetts, Illinois, Minnesota, Dakota, and southern California; casually to Labrador.

Sp. Char. Smallest of the Terns (wing less than seven inches). *Adult, in summer:* Pileum and nape deep black, the forehead covered by a broad lunule of white extending back laterally to the eyes, the lores being crossed by a black line or narrow stripe extending from the eye to the lateral base of the maxilla, immediately behind the nostril. Entire

upper parts, including lower part of the nape, upper tail-coverts, and tail pale pearl-gray, deepest on the dorsal region and wings. Two to three outer primaries dusky slate, the inner webs broadly edged with white; remaining quills pale pearl-gray, like the coverts, the edge of the inner webs white. Entire lower webs pure white. Bill bright yellow, usually (but not always) tipped with black; iris dark brown; legs and feet bright orange-yellow. *Adult, in winter:* Similar, but lores, forehead, and crown grayish white (purer white anteriorly); an occipital crescent and a stripe forward from this to and surrounding the eye blackish. Bill dusky; legs and feet dull yellowish. *Young, first plumage:* Somewhat similar to the winter plumage, but humeral region marked by a wide space of dusky slate, the scapulars and interscapulars with submarginal V- or U-shaped marks of dusky, the crown streaked and the occiput mottled with dusky, and the primaries darker than in the adult. Bill dusky, brownish toward the base; feet brownish. *Downy young:* Above, grayish white, finely mottled with dusky grayish, the head distinctly marked with irregular dots of dusky black; lower parts entirely immaculate white. Bill dull yellow, tipped with dusky; legs and feet clear pale yellow.

Total length, about 9.00–9.40 inches; extent, 18.75–20.00; wing, 6.60; tail, 3.50, its fork, 1.75; culmen, 1.20; depth of bill at base, .28; tarsus, .60; middle toe, with claw, .72.

This beautiful little tern occurs in summer nearly throughout the Mississippi Valley, and, doubtless, breeds somewhere within the limits of Illinois, although there is not, to my knowledge, any record of its doing so. It is much more abundant along the Atlantic coast, where it formerly bred regularly as far north as Massachusetts, but on account of the increasing summer population of the localities most frequented by it (the islands just off the coast), it, like other terns, is said to be growing every year less numerous, and has even quite abandoned many of its former breeding grounds.

Its habits are quite similar to those of other species of the same genus. It is equally bold and pugnacious when its eggs or young are menaced, when it keeps up a protesting cry of *uik'*, *uik'*, *uik'*, sounding very much like the querulous grunt of a young pig whose mother has left it too far in the rear.

Its eggs are deposited on the bare sand, gravel, or "shingle" beyond reach of the highest tides, and in color assimilate so closely to their surroundings as to be with great difficulty detected.

GENUS **HYDROCHELIDON** BOIE.

Hydroc'elidon BOIE, Isis, 1822, 563. Type, *Sterna nigra* LINN.

GEN. CHAR. Similar to the smaller species of *Sterna*, but tail only very slightly forked or emarginate, the rectrices not attenuated at ends, and the webs of the toes filling less than half the interdigital spaces. Adults gray or blackish beneath, as dark as, or darker than, the color of the upper surface.

Only one species of this genus belongs properly to North America, although a single specimen of a European species was taken at Lake Koshkonong, Wisconsin, by the late Professor Thure Kumlien, July 5, 1873.

The common North American bird has been generally referred to the European *H. nigra* (LINN.), but is so different that little, if any, harm would be done by considering it a distinct species.*

Hydrochelidon nigra surinamensis (Gmel.)

BLACK TERN.

Popular synonyms. American Black Tern; Short-tailed Tern; Golondrina de mar (Mexico).

Sterna surinamensis GMEL. S. N. i, pt. ii, 1788, 604.
Hydrochelidon surinamensis BONAP. Compt. Rend. 1856, 773.
Hydrochelidon lariformis surinamensis RIDGW. Nom. N. Am. B. 1881, No. 693.
Hydrochelidon nigra surinamensis STEJN. Proc. U. S. Nat. Mus. Vol. 5, 1882, 40.—B. B. & R. Water B. N. Am. ii, 1884, 318.—A. O. U. Check List, 1886, No. 77.—RIDGW. Man. N. Am. B. 1887, 47
Sterna plumbea WILS. Am. Orn. vii, 1813, 83, pl. 83 (young).
Hydrochelidon plumbea LAWR. in Baird's B. N. Am. 1858, 864.—BAIRD, Cat. N. Am. B. 1859, No. 695.
Sterna nigra SW. & RICH. F. B.-A. ii, 1831, 415 (nec LINN.).—NUTT. Man. ii, 1834, 282.—AUD. Orn. Biog. iii, 1835, 593; v, 1839, 642, pl. 180; Synop. 1839, 320; B. Am. vii, 1844, 116, pl. 438
Hydrochelidon nigra (part) SAUNDERS, P. Z. S. 1878, 642.
Hydrochelidon fissipes (part) COUES, Proc. Acad. Nat. Sci. Phila. 1862, 554 (nec *Sterna fissipes* LINN.); Key, 1872, 323; Check List, 1873, No. 575.
Hydrochelidon lariformis (part) COUES, B. N. W. 1874, 704 (nec *Rallus lariformis* LINN.); 2d Check List, 1882, No. 806.—RIDGW. Orn. 40th Par. 1877, 640.

HAB. The whole of temperate North America, and portions of tropical America; north to Alaska, south to Chili; breeds nearly throughout its North American range, except along Atlantic and Gulf coasts.

SP. CHAR. *Adult, in summer:* Head, neck, and lower parts sooty black, the head and neck, especially above, nearly pure black; anal region and crissum pure white. Entire upper parts uniform plumbeous, the border of the wing, from the shoulders to the carpo-metacarpal joint, white. Lining of the wing light plumbeous-gray. Bill deep black, the rictus lake-red, the interior of the mouth pinkish; iris dark brown; legs and feet purplish dusky. *Adult, in winter:* Head, neck, and lower parts pure white; orbital and auricular regions dusky; crown and occiput dark grayish, the feathers bordered with paler. Upper parts as in the summer plumage, but rather paler plumbeous. *Young, first plumage:* Very similar to the winter plumage, but scapulars, interscapulars, and tertials tipped with raw umber brown, the anterior lesser wing coverts dusky, the crown, occiput, and upper part of the nape dusky, and the entire sides washed with plumbeous. *Downy young:* Above, deep, soft umber-brown, with a few coarse, irregular marblings of black; forehead, crown, throat, and chest more sooty brown, without markings; sides of the head (including lores) dull whitish; abdomen white centrally, pale sooty grayish exteriorly.†

* See *Water Birds of North America*, vol. ii, p. 320.

† From No. 77,564, Cold Springs, Cal., July 27, 1877; H. W. HENSHAW, collector.

Total length, about 9.25–9.75 inches; extent, 24.00–25.00; wing, 8.25; tail, 3.75, its fork, .90; culmen, 1.10; depth of bill at base, .25; tarsus, .68; middle toe (with claw), .90.

In most parts of the Mississippi Valley, as well as the more western portions of the continent, this is decidedly the most numerous of the terns. It inhabits reedy marshes, but may also sometimes be seen "hawking" for dragon-flies, grasshoppers, and other insects, over meadows or fields some distance from water, uttering a harsh *krik*, *krik*, *krik*, as it flies, particularly if two or more be together or near one another. It is very unsuspicious.

ORDER PYGOPODES.—THE DIVING BIRDS.

CHARACTERS. Legs inserted far backward, the tarsi extremely compressed. Anterior toes fully webbed or else strongly lobed and with broad flat nails (*Podicipidæ*). Bill extremely variable. Habits præcocial in *Podicipidæ* and *Colymbidæ*, altricial in *Alcidæ;* young dasypædic. Palate schizognathous. Carotids double, except in *Podicipidæ* and some *Alcidæ* (*e. g.*, genus *Alle*).

The following Families are referred to this Order in the American Ornithologists' Union Check List:

A. Tail-feathers wanting. (Suborder *Podicipedes*.)
   1. **Podicipidæ.** Anterior toes lobed, the nails very broad and flat, with rounded tips.
B. Tail-feathers present, but short. (Suborder *Cepphi*.)
   2. **Urinatoridæ.** Hind toe present.
   3. **Alcidæ.** Hind toe absent. (Not represented in the Illinois fauna.)

According to Seebohm,* the *Alcidæ* should be removed from any close association with the *Podicipidæ* and *Urinatoridæ*, which that author unites in a so-called Order which he terms "*Colymbo-Podicipes.*" The latter he considers as representing "highly specialized Penguins," while the *Alcidæ* he regards as "Archaic Gulls."

Even the Penguins (Family *Spheniscidæ*) have been placed by some authors among the *Pygopodes*, but there can be no doubt as to the very great remoteness of their relationship.

* *The Ibis*, October, 1888, pp. 433–434.

FAMILY URINATORIDÆ.—THE LOONS.

CHARACTERS. Swimming birds, with the feet situated far back, a well developed hallux, and anterior toes completely webbed and normally clawed; the bill straight, acute, compressed, the nostrils linear, overhung by a membranous lobe; tail normal, but short. Nature præcocial. Nest on ground at edge of marsh or lake; eggs two, elongate-ovate, deep brown or olive, rather sparsely speckled or spotted with dark brown and blackish.

GENUS URINATOR CUVIER.

Colymbus LINN. S. N. ed. 10, i, 1758, 135; ed. 12, i, 1766, 220 (part).
Mergus BRISS. Orn. vi, 1760, 104 (not of LINN. 1758).
Uria SCOP. Introd. 1777. 473 (not of BRISS. 1760).
Urinator CUV. Anat. Comp. i, 1799, tabl. ii. Type, *Colymbus imber* GUNN.
Eudytes ILLIG. Prodr. 1811, 282 (same type).

GEN. CHAR. The same as those of the Family, as given above, in addition to which are the following characters of coloration: Above blackish or slaty, beneath white. *Adult:* Upper parts spotted or speckled with white, the throat and fore-neck blackish or chestnut. *Young:* Upper parts without white markings, and throat and fore-neck white like rest of lower parts. *Downy young:* Uniform sooty grayish, the belly white.

The known species are all North American, and may be distinguished by the following characters:

A. Tarsus shorter than middle toe without claw; fore-neck blackish in summer.
  a. Distance from base of culmen to anterior point of loral feathers, above nostrils, greater than the distance from the latter point to anterior border of nostrils. *Summer plumage* with head and neck black all round, the middle of the fore-neck and sides of lower neck each crossed by a bar, or transverse series, of white streaks.
    1. **U. imber.** Tarsus longer than exposed culmen; bill in adult blackish (almost wholly deep black in summer); head and neck glossed with velvety green; white spots on scapulars broad as long; length 28.00–36.00; wing 13.00–15.25 (14.06); culmen 2.75–3.50 (3.07); depth of bill through base .90–1.05 (.96).
    [2. **U. adamsii** (*Yellow-billed Loon*). Tarsus shorter than exposed culmen; bill in adult whitish (almost wholly yellowish white in summer); head and neck glossed with velvety violet-blue; white spots on scapulars decidedly longer than broad; length about 35.00–38.00; wing 14.85–15.45 (15.11); culmen 3.50–3.65 (3.59); depth of bill through base 1.00–1.20 (1.09). *Hab.* Western Arctic America and northeastern Asia.]
  b. Distance from base of culmen to anterior point of loral feathers, not greater than distance from the latter point to anterior extremity of nostril. *Summer plumage*

with upper part of head and hind part of neck grayish; throat and fore-neck black, without white streaks, but several longitudinal series of the latter down the side of the neck, between the black and the gray.

3. **U. arcticus.** Fore-neck and under side of neck glossed with velvety purple; occiput and hind-neck deep gray, almost plumbeous. Length 26.00–29.00; wing 12.15–13.20 (12.55); culmen 2.50–2.85 (2.60); depth of bill at base, .75–.80 (.78).

[4. **U. pacificus** (*Pacific Loon*). Fore-neck and under side of head glossed with dull bronzy greenish, sometimes inclining to purplish; occiput and hind-neck very pale smoky grayish, sometimes nearly white. Wing, 11.20–12.25 (11.54); culmen, 2.00–2.35 (2.15); depth of bill at base .55–.65 (.62). *Hab.* Pacific coast of North America, from Alaska to Lower California, breeding far northward.]

B. Tarsus longer than middle toe *with* claw.

5. **U. lumme.** Fore-neck rich chestnut in summer; head and neck plumbeous-gray, the top of head and hind-neck streaked with white; upper parts speckled with white. *Summer plumage:* Throat and fore-neck plumbeous, like rest of head and neck, but marked down the middle with a wedge-shaped patch or stripe of rich chestnut. *Winter plumage* and *young:* Throat and fore-neck white. *Downy young:* Above uniform dusky, or sooty slate; lower parts paler and more grayish. Length 24.00–27.00; wing, 10.00–11.50; culmen, 2.25; tarsus, 2.75.

Urinator imber (Gunn.)

THE LOON.

Popular synonyms. Great Northern Diver; Walloon; Guinea Duck.

Columbus imber GUNN. Trond. Selsk. Skr. i, 1761, pl. iii.

Urinator imber STEJN. Orn. Kamtsch. 1885, 313.—A. O. U. Check List, 1886, No. 7.—RIDGW. Man. N. Am. B. 1887, 7.

Colymbus immer BRÜNN. Orn Bor. 1764, 34 (young).—LINN. S. N. ed. 12, i, 1766, 222.

Urinator immer STEJN. Proc. U. S. Nat. Mus. Vol. 5, 1882, 43.—B. B. & R. Water B. N. Am. ii, 1884, 446.

Colymbus torquatus BRÜNN. Orn. Bor. 1764, 41.—LAWR. in Baird's B. N. Am. 1858, 888.—BAIRD, B. N. Am. 1859, No. 698.—COUES, Proc. Acad. Nat. Sci. Phila. 1862, 227; Key, 1872, 334; Check List, 1873, No. 605; 2d ed. 1882, No. 840.—RIDGW. Nom. N. Am. B. 1881, No. 736.

Colymbus glacialis LINN. S. N. ed. 12, i, 1766, 221.—WILS. Am. Orn. ix, 1824, 84, pl. 74.—RICH. & SW. F. B.-A. ii, 1831, 474.—NUTT. Man. ii, 1834, 513.—AUD. Orn. Biog. iv, 1838, 43, pl. 306; B. Am. vii, 1844, 282, pl. 476.

Colymbus maximus GUNN. Trond. Selsk. Skr. iii, 1765, 125.

Mergus nævius BONNAT. Enc. Méth. Orn. i, 1790, 73.

Colymbus atrogularis MEYER & WOLFE, Tasch. Vög. Deutschl. ii, 1810, 449 (part).

Colymbus hyemalis BREHM, Lehrb. Eur. Vög. ii, 1824, 883.

HAB. Northern part of northern hemisphere. In America, breeding from Minnesota, northern Illinois, northern New York, New Hampshire, Maine, and mountains of California northward; wintering south to the Gulf of Mexico; no extralimital American record.

SP. CHAR. *Adult.* Head and neck dull black, with a greenish reflection, this brightest on the lower part of the neck; fore-neck crossed by a narrow bar of white longitudinal oblong dots or short streaks; sides of the neck some distance below this crossed by a broad bar of longitudinal white streaks; upper parts black, beautifully variegated with white dots, these largest, quadrate in form, and arranged in transverse series on the scapulars, minute and dot-like on the rump. Lower parts immaculate white, the sides of the chest narrowly streaked with black, the sides and flanks black, dotted with white. Bill black, paler at the tip; iris carmine; legs and feet livid grayish blue, their inner sides tinged with pale yel-

lowish flesh-color; claws black, lighter at the base; webs brownish black, lighter in the middle" (AUDUBON). *Young:* Upper parts dusky, the scapulars, interscapulars, and upper tail-coverts bordered terminally with plumbeous-gray; lower parts, including malar region, chin, throat, and fore-neck, white, the sides and flanks dusky brown, squamated with grayish. "Bill pale yellowish green, the ridge and tip of upper mandible dusky; iris brown; feet dusky externally, pale yellowish flesh-color internally, webs dusky, but yellow in the middle" (AUDUBON). *Downy young:* Uniform dark fuliginous, lighter and more slaty on the throat, fore-neck, chest, and sides, the entire abdomen velvety yellowish white, shaded with pale ash-gray exteriorly. The down short and very dense, very similar to the fur of an otter or other fur-bearing mammal.

Total length, 28.00 to 36.00 inches; extent, 52.00 to 57.50; wing, 13.05–15.25 (average 14.06); culmen, 2.75–3.50 (3.07); depth of bill through base, .90–1.06 (.96); tarsus, 2.75–3.85 (3.35); outer toe, 3.85–4.65 (4.22). [Thirteen adults.]

This handsome water bird is a more or less common winter resident on the larger waters throughout the State of Illinois, and breeds in the northern portion, although according to Mr. Nelson it was, as long ago as 1876, "of uncommon occurrence during summer" in Cook county.*

The following description of the leading characteristics of the Loon is partly condensed from Dr. Brewer's account in *Water Birds of North America*, Vol. II., pages 447–450:

The Loon very rarely associates in flocks, and then only apparently from necessity—as when a limited surface of open water compels them to crowd together. During the winter, either singly or in pairs, or in small parties, they are dispersed throughout the United States. Knowing that man is its mortal enemy, this bird is constantly on the watch. When it meets a passing boat it widens the distance by immediately steering off, is active in diving, and when sitting, defies the keenest sportsman. It is a very hardy bird, and is said to live to an incredible old age. It subsists almost entirely on fish, is an excellent diver, and when alarmed, eludes pursuit by passing swiftly to a considerable distance under the water. Its habits are strictly aquatic. When, in its migrations, it passes over the land, it flies at a great height and very rapidly. In stormy weather it takes shelter in coves and creeks, and occasionally in mill ponds.

The loon swims very low in the water, hardly more than the head and neck being exposed, and is so alert and active as to dive readily at the flash of a gun, rendering it almost impossible to kill the bird with a charge of shot unless very close to it. It prefers to escape pursuit by diving rather than flying, and

* *Bulletin of the Essex Institute*, Vol. viii, p. 150.

remains under water so long and comes to the surface at so great a distance from the pursuer and in such unexpected places that the pursuit of one that has been made wary by attempts on its life is exciting though often tedious.

The cry of the loon is loud and melancholy, being likened by some to the howl of a wolf or the prolonged scream of a human being in distress.

Its flesh is dark, tough, and fishy, but is eaten by Indians.

Urinator arcticus (Linn.)

BLACK-THROATED LOON.

Popular synonyms. Arctic Loon or Diver; Black-throated Diver.

Colymbus arcticus Linn. S. N. ed. 10, i, 1758, 135; ed. 12, 1766, 221.—Rich. & Sw. F. B.-A. ii, 1831, 475.—Nutt. Man. ii, 1834, 517.—Aud. Orn. Biog. iv, 1838, 345; B. Am. vii, 1844, 295, pl. 477.—Gray, Gen. B. iii, ——, pl. 171.—Lawr. in Baird's B. N. Am. 1858, 888.—Baird, Cat. N. Am. B. 1859, No. 699.—Coues, Proc. Acad. Nat. Sci. Phila. 1862, 228; Key, 1872, 334; Check List, 1873, No. 606; ed. 2, 1882, No. 842; Birds N. W. 1874, 721.—Ridgw. Nom. N. Am. B. 1881, No. 738.

Urinator arcticus Stejn. Proc. U. S. Nat. Mus. v, 5, 1882, 43.—B. B. & R. Water B. Am. ii, 1884, 452.—A. O. U. Check List, 1886, No. 9.—Ridgw. Man. N. Am. 1887, 7.

Colymbus macrorhynchos Brehm, Vög. Deutschl. 1831, 974.

Colymbus megarhynchos Brehm, Naum. v, 1855, 300.

Colymbus ignotus Bechst. Gemein. Naturg. Deutschl. ii, 1791, 782.

Colymbus leucopus Bechst. Naturg. iv, 1809, 625.

Hab. Northern portions of northern hemisphere, breeding in Arctic districts. In America, migrating south in winter, through the Eastern Province, to the northern United States.

Sp. Char. *Adult:* Chin, throat, and fore-neck velvety purplish black, with a purplish violet reflection, this black bounded sharply below, but on the sides of the head blending gradually into the color of the cheeks and lores, which are smoky slate, this color gradually fading into a rather light smoky cinereous, which occupies the whole upper part of the head and the entire nape; across the fore-neck, just below the throat, a bar of white streaks; on the sides of the neck, between the purplish black of the fore-neck and the ash of the nape, several longitudinal rows of black and white streaks, the latter narrowest. Upper parts deep black, the upper part of the back with two parallel longitudinal series of broad white bars, the inner scapulars with a single series of much larger, but otherwise similar, bars, and the wing-coverts marked with small ovate spots of white. Lower parts white, the sides of the chest streaked with black; entire sides uniform intense black. Bill black, the tip lighter; iris bright carmine; legs and feet "grayish blue, their inner sides tinged with yellow; claws black, that of the inner toe yellowish at the base" (Audubon). *Young:* Similar to that of *U. imber*, but usually much smaller, the angle of the mandible less prominent.

Total length, about 26.00 to 29.00 inches; extent, 39.50; wing, 12.15–13.20 (average, 12.55); culmen, 2.50–2.85 (2.60); depth of bill through base, .75–.80 (.78); tarsus, 2.90–3.30 (3.11); outer toe, 3.45–3.95 (3.76). [Five adults.]

The young of this species, particularly full-grown specimens, are sometimes difficult to distinguish from immature specimens of *U. imber;* but the measurements will in most

cases determine the species, *U. arcticus* being decidedly smaller; the two comparing about as follows:

	Wing.	Culmen.	Gonys.	Tip of bill to nostril.	Depth of bill at nostril.	Tarsus.
U. arcticus, juv.....	12.00	2.53	1.18	1.85	.67	3.10
U. imber, juv.....	*13.00	3.20	1.43	2.43	.94	2.75-3.85

*Or more.

The Black-throated Loon is essentially an Arctic bird, but is said to be a very rare winter visitant to Lake Michigan, thus doubtless occasionally occurring within the limits of Illinois. I am not, however, able to cite any record of its actual occurrence, and Mr. Nelson mentions only specimens taken at Racine and Milwaukee, Wisconsin.

Its habits are essentially the same as those of the larger and more common species (*U. imber*).

Urinator lumme (Gunn.)

RED-THROATED LOON.

Popular synonym. Red-throated Diver.

Colymbus lumme GUNNER. Trond. Selsk. Skr. i, 1761, pl. ii, fig. 2.—BRÜNN. Orn. Bor. 1764, 39 (adult).

Urinator lumme STEJN. Proc. U. S. Nat. Mus. Vol. 5, 1882, 43.—B. B. & R. Water B. N. Am. ii, 1884, 457.—A. O. U. Check List, 1886, No. 11.—RIDGW. Man. N. Am. B. 1887, 8.

Colymbus septentrionalis LINN. S. N. ed. 10, i, 1766, 220 (adult).—Sw. & RICH. F. B.-A. ii, 1831, 476.—NUTT. Man. ii, 1834, 519.—AUD. Orn. Biog. iii, 1835, 20, pl. 202; Synop. 1839, 354; B. Am, vii, 1844, 299, pl. 478.—LAWR. in Baird's B. N. Am. 1853, 890.—BAIRD, Cat. N. Am. B. 1859, No. 701.—COUES, Key, 1872, 335; Check List, 1873, No. 607; ed. 2, 1882, No. 844; B. N. W. 1874, 724.—RIDGW. Nom. N. Am. B. 1881, No. 740.

Colymbus stellatus BRÜNN. t. c. No. 130 (young).

Colymbus borealis BRÜNN. t. c. No. 131.

Colymbus striatus GMEL. S. N. i, pt. ii, 1788, 586 (young).

Colymbus rufogularis MEYER, Tasch. Vög. Deutsch. ii, 453 (adult).

Colymbus microrhynchos BREHM, Naum. v, 1855, 300.

HAB. Northern parts of the northern hemisphere, breeding from Labrador and Manitoba northward. South, in winter, entirely across the United States.

SP. CHAR. *Adult, summer plumage:* Head and neck soft velvety cinereous, the crown streaked with dusky; nape dusky, streaked with white; a longitudinal, wedge-shaped patch of rich chestnut covering the fore-neck, the lower, truncated, edge adjoining the white of the chest, the upper point reaching to the lower part of the throat. Upper parts dusky slate, more or less speckled with white. Lower parts entirely pure white, except along the sides, beneath the wings, and on the crissum, where more or less mixed with slate-color. Bill deep black, the extreme point yellowish, and the culmen sometimes bluish; iris carmine; "tarsi and toes bluish white, each joint of the latter, and the whole of

the outer toe, black" (L. M. TURNER, MS.). *Winter plumage:* Similar to the above, but the whole lower half of the head, with entire fore-neck, white, the nape and upper half of the head uniformly marked with broad streaks of dusky and narrower ones of white, and the upper parts more uniformly and distinctly speckled with white. Bill brownish or grayish. *Downy young:* "The young are at first covered with a dense elastic down of a grayish black color, tinged with brown. The bill is bluish black, its basal edges yellow; the iris reddish brown" (AUDUBON).

Total length, 18.00–27.00 inches; extent, 38.50–44.00; wing, 10.00–11.50; culmen, 2.25; tarsus, 2.75.

FAMILY PODICIPIDÆ.—THE GREBES.

CHARACTERS. Swimmers resembling the Loons in the posterior insertion of the legs, but the toes lobate and semipalmate, instead of completely webbed, the claws broad, flat, and nail-like, instead of normally narrow and curved. Bill variable in shape; nostrils variable, but without an overhanging lobe; wings very short and concave, the primaries covered by the secondaries in the closed wing; tail rudimentary, consisting of a mere tuft of downy, loose-webbed feathers, without perfectly formed rectrices; plumage of the lower surface remarkably silky and lustrous, usually white.

The Grebes are aquatic birds, poorly adapted for protracted flight, on account of the smallness of their wings, but among the most expert of divers. Their nest is a thick matted platform of rushes, sedges, etc., usually floating upon the surface of the water in grassy or sedgy ponds or marshes. The eggs are 2–5, dull white, bluish white, or very pale bluish green, usually stained more or less (often quite deeply) with light brown, by contact with decomposed vegetable matter.

The recognized North American genera may be distinguished as follows:

A. Bill slender, the length of the culmen much more than twice the depth of the bill at the base.

[1. Æchmophorus. Length of culmen at least five times the greatest depth of the bill; neck nearly as long as the body. (Not represented in the Illinois fauna.)]

2. **Colymbus.** Length of culmen less than four times the greatest depth of the bill; neck much shorter than the body.

B. Bill very stout, the length of the culmen less than twice the greatest depth of the bill.

3. **Podilymbus.**

GENUS COLYMBUS LINNÆUS.

Colymbus LINN. S. N. ed. 10, i, 1758, 135; ed. 12, i, 1766, 220. Type, by elimination, *Colymbus cristatus* LINN.

Podiceps LATH. Ind. Orn. ii, 1790, 780 (part; but, type, by elimination and restriction, *Colymbus fluviatilis* TUNST.).

Dytes KAUP. Sk. Ent. Eur. Thierw. 1829, 49. Type, *Colymbus cornutus* GMEL.,=*C. auritus* LINN.

Proctopus KAUP. l. c. Type, *Podiceps nigricollis* BREHM.

Olodytes REICH. Syst. Nat. 1853, p. 111 (same type).

Tachybaptus REICHENB. Syst. Av. 1852. p. iii. Type, *Colymbus minor* GMEL.,=*C. fluviatilis* TUNST.

GEN. CHAR. Neck much shorter than the body; bill not longer than the head, more or less slender, its depth never more than one third the length of the culmen; tarsus decidedly shorter than middle toe with claw. Nuptial plumage ornamented by colored tufts, ruffs, or patches about the head, and very different in this respect from the winter plumage.

This genus includes several subgenera (more or less distinct), of which the following are represented in North America:

A. Bill about as long as the head; size large (wing more than 6.00 inches).
1. **Colymbus.**

B. Bill decidedly shorter than head; size smaller (wing less than 6.00 inches).
2. **Dytes.** Size medium (wing more than 5.00 inches); nuptial plumage with conspicuous head-tufts or ruffs, as in *Colymbus*.
[3. **Podiceps.** Size small (wing less than 5.00); nuptial plumage without head-tufts or ruffs. (Not represented in the Illinois fauna.)]

Subgenus **COLYMBUS** Linnæus.

Colymbus Linn. S. N. ed. 10, i, 1758, 135. Type, by elimination, *C. cristatus* Linn.

Subgen. Char. Neck much shorter than the body; bill about equal to the head, stout (length of the culmen about three and a half times the depth through the base), the tip blunt, and the outlines more or less convex; tarsus shorter than middle toe with claw. Breeding plumage ornamented by colored tufts or patches about the head, the winter plumage and the young very different.

Only one species of this subgenus belongs to North America, the occurrence of *C. cristatus*—which for half a century or more has been included in most works on North American ornithology, and generally considered a common bird of this country—being so very doubtful that there is not a single reliable record of its having been taken on this continent. For convenience of identification, however, in case it should be found in America, its characters are given below.

1. **C. holbœllii.** Feathers of lower parts white only superficially, the bases of the feathers being grayish, this often partly exposed and showing as a more or less distinct spotting. *Nuptial plumage* with top of head black, rest of head ash-gray, bordered above and behind by whitish, the neck rusty.
2. **C. cristatus.** Feathers of the lower parts pure white to the extreme base. *Nuptial plumage* with top of head and elongated tufts on each side of occiput glossy black; chin and throat buffy white, this passing behind into bright rusty on a very prominent auricular frill, which is tipped with black. *Hab.* Nearly cosmopolitan, but no reliable North American record.

Colymbus holbœllii (Reinh.)

HOLBŒLL'S GREBE.

Popular synonyms. American Red-necked Grebe; Cooper's Grebe.

Podiceps rubricollis "Lath." Bonap. Synop 1828, 417.—Sw. Rich. F. B.-A. ii, 1831, 411.—Nutt. Man. ii, 1834, 253.—Aud. Orn. Biog. iii, 1835, 617, pl. 298; Synop. 1839, 357; B. Am. vii, 1844, 312, pl. 480.

Podiceps rubricollis major Temm. & Schleg. Faun. Jap. 1849, pl. 78 b (not *Colymbus major* Bodd. 1783).

Podiceps holbœllii Reinh. Vid. Meddel. 1853, 76; Ibis, 1861, 14 (Greenland).—Coues, Proc. Acad. Nat. Sci. Phila. 1862, 231.—Ridgw. Nom. Am. B. 1881, No. 731.

Podiceps griseigena, var. *holböllii* COUES, Key, 1872, 337; Check List, 1873; No. 610; Birds N. W. 1874, 730.

Podicipes griseigena holbœlli COUES, 2d Check List, 1882, No. 847.

Colymbus holbœllii B. B. & R. Water B. N. Am. ii, 1884, 428.—A. O. U. Check List, 1886, No. 2.—RIDGW. Man. N. Am. B. 1884, 57.

Podiceps griseigena (nec BODD.) LAWR. in Baird's B. N. Am. 1858, 892.—BAIRD, Cat. N. Am. B. 1859, No. 702.

Podiceps cooperi LAWR. in Baird's B. N. Am. 1858, 893 (in text).

Podiceps subcristatus KITTL. Denkw. ii, 1858, 313 (not of JACQ. 1784).

Podiceps affinis SALVADORI, Atti Soc. Ital. viii, 1866, 45.

Podiceps cucullatus TACZ. J. f. O. 1874, 336 (not of PALL. 1826).

Podiceps cristatus RIDGW. Orn 40th Par. 1877, 642.

Podiceps occidentalis TRISTRAM, Ibis, Jan, 1887, 98, 99; Apr. 1887, 258, 259.*

HAB. North America in general, including Greenland; breeding from Minnesota, Maine, etc., northward, migrating south, in winter, quite across the United States. Eastern Siberia, and south to Japan.

SP. CHAR. *Adult, breeding plumage:* Pileum (including lores and depressed occipital tuft) and nape glossy black; rest of the head light ash-gray, bordered above and below by whitish, this most distinct along the upper border, from the eyes backward; neck (except nape) rich rufous, abruptly defined above against the ashy of the throat, but below gradually merging into the whitish of the breast. Upper parts blackish dusky, the feathers sometimes with paler margins; secondaries chiefly white. Lower parts grayish white, faintly spotted, except on the abdomen, with dusky grayish; sides and flanks nearly uniform grayish. "Bill brownish black, bright yellow at the base; iris carmine; tarsi and toes greenish black externally, yellow on the inner side, the edges of the lobes dusky" (AUDUBON). *Winter plumage:* Pileum dusky, the occiput without elongated feathers; neck smoky grayish brown, lighter in front, dusky on the nape; chin, throat, and malar region whitish. Otherwise as in the summer plumage. *Young:* Pileum and sides of the head dusky, marked with several white stripes—one originating at the sides of the forehead, and passing over and behind the eye, another extending from the eye backward over the auriculars, and another dividing the cheeks; a short whitish stripe on each side of the upper part of the nape; fore part and sides of the neck light ferruginous. "Culmen black, all the rest of the bill yellow: iris yellow; outer side of tarsus and under web blackish, the rest of the feet bright greenish yellow" (L. M. TURNER, M. S.†). Otherwise as in the adult.

Total length, about 18.00 to 20.00 inches; extent, about 32.00; wing, 7.30–8.10 (average, 7.65); culmen, 1.65–2.40 (2.02); depth of bill at base, .52–.62 (.57); tarsus, 2 25–2.75 (2.53); outer toe, 2.50–3.05 (2.76). [Seventeen specimens.]

Holbœll's Grebe, the American representative of the much smaller Red-necked Grebe (*C. griseigena* BODD.) of Europe, is a winter visitant to Illinois. Its summer home is much farther northward, west-central Minnesota being the nearest point where it has been found breeding.‡

Mr. Robert Kennicott found it breeding in the neighborhood of Fort Yukon, Alaska, and, on the 14th of June, took the eggs from a nest which was floating on the water among the grass on the borders of the lake. It was nearly flat on the top, and

* *Cf* RIDGW. *Ibis*, July, 1887, 361, 362, and TRISTRAM, id. Jan. 1888, 148; April, 1889, 227, 228.

† Fresh colors of No. 70,303, U. S. Nat. Mus., collected at St. Michael's, Alaska, Sept. 25, 1874, by LUCIEN M. TURNER. (Length 20.00, extent 32.00, inches.)

‡ DR. T. S. ROBERTS, in *The Auk*, April, 1890, p. 213.

very little above the surface of the water, and contained three eggs. He saw the female, but only at a distance; both this species and the Horned Grebe (*C. auritus*) being seldom or never seen to leave their nests, as they quietly slip into the water and dive at once. After incubation has begun, the female, when she leaves her nest, covers up her eggs with wet grass taken from the bottom of her nest, unless compelled to depart on the instant. In several cases Mr. Kennicott found the eggs quite warm when thus hidden; and he was convinced that the bird could only have just left the nest on his approach, but that she had stopped long enough to conceal her eggs. The top of the nest is always more or less wet, and this causes the discoloration of the eggs. (*Water Birds of North America*, Vol. II., p. 430.)

Subgenus DYTES Kaup.

Dytes Kaup, Sk. Ent. Eur Thierw. 1829, 49. Type, *Colymbus cornutus* Gmel.,=*C. auritus* Linn.

Proctopus Kaup, l. c. Type, *Podiceps nigricollis* Brehm.

Otodytes Reich. Syst. Nat. 1853, p. iii. Type, *P. nigricollis*.

Subgen. Char. Bill much shorter than the head, the culmen equal to about 3 to 3½ times the basal depth. Otherwise like *Colymbus*, but size less (wing not more than 6.00 inches).

The two North American species of this subgenus, both of which occur in Illinois, though very distinct in their nuptial livery, are much alike in their winter and immature plumages. The shape of the bill, however, will enable one to distinguish them readily if the following differences are kept in mind:

1. C. auritus. Bill compressed (deeper than wide at the base); nuptial plumage with lower neck and chest rufous, sides of the occiput with a very full dense tuft of soft, blended, ochraceous feathers.

2. C. nigricollis californicus. Bill depressed (broader than deep at the base); nuptial plumage, with head, neck, and chest black, the sides of the head, behind eyes, with a somewhat fan-shaped, loose patch of slender ochraceous feathers.

Colymbus auritus Linn.

HORNED GREBE.

Popular synonyms. Dusky Grebe; Sclavonian Grebe; Hell-diver; Di-dipper.

Colymbus auritus Linn. S. N. ed. 10 i, 1758, 135; ed. 12, i, 1766, 222.—A. O. U. Check List, 1886, No. 3.—Ridgw. Man. N. Am. B. 1887, 5.

Dytes auritus Ridgw. Nom. N. Am. B. 1881, No. 732.—B. B. & R. Water B. N. Am. ii, 1884, 432.

Colymbus cornutus GMEL. S. N. i, pt. ii, 1788, 591.

Podiceps cornutus LATH. Ind. Orn. ii, 1790, 783.—SW. & RICH. F. B.-A. ii, 1831, 411.—NUTT. Man. ii, 1834, 254.—AUD. Orn. Biog. iii, 1835, 429, pl. 259; Synop. 1839, 357; B. Am. vii, 1844, 316, pl. 481.—LAWR. in Baird's B. N. Am. 1858, 895.—BAIRD, Cat. N. Am. B. 1859, No. 706.—COUES, Key, 1872, 337; Check List, 1873, No. 611; Birds N. W. 1874, 731.

Podicipes cornutus COUES, 2d Check List, 1882, No. 848.

Colymbus obscurus GMEL. S. N. i, pt. ii, 1788, 592.

Colymbus caspicus S. G. GMEL. Reise, iv, 1774–1784, 137.—GMEL. S. N. i, pt. ii, 1788, 593.

Podiceps bicornis BREHM, Vög. Deutschl. 1831, 96. pl. 44, fig. 4.

HAB. Northern hemisphere in general. Breeds in the northern United States and northward.

SP. CHAR. *Adult, breeding-plumage:* Head generally, including the fluffy tufts on each side of the upper neck, slightly glossy dull greenish black, becoming gradually dull sooty slate on the forehead; lores dull ochraceous-rufous, communicating with a broad superciliary stripe of bright ochraceous, which continues, gradually widening, to the sides of the occiput; fore-neck rich rufous. Upper parts dusky, the feathers sometimes with indistinctly paler margins; secondaries chiefly or entirely white. Lower parts white, the sides mixed chestnut-rufous and grayish dusky. "Bill bluish black, its tip yellow; short loral space bright carmine, as is the iris, its inner margin white; edges of eyelids grayish blue; feet dusky externally, internally, and on anterior and posterior ridges of the tarsus dull yellow; claws dusky" (AUDUBON).* *Winter plumage:* Pileum, nape, and sides of the chest smoky slate; under part and sides of the head, lores, and lower parts generally, white; chest faintly shaded with pale grayish, and sides clouded with dark grayish. Upper parts as in the summer plumage, but more slaty. "Bill bluish gray, as in the bare loral space; the eye bright carmine, with an inner white edge; the feet bluish gray" (AUDUBON). *Downy young (half-grown):* Pileum and nape dusky; sides of the head with two dusky stripes and several irregular spots of the same color; throat with a dusky streak on each side. Otherwise similar in color to the winter plumage.

Total length, about 14.75 inches; extent, 25.50; wing, 5.75; culmen, 1.00; tarsus, 1.75.

The Horned Grebe is said to breed in northern Illinois, but in other portions of the State is only a winter resident.

Colymbus nigricollis californicus (Heerm.)

AMERICAN EARED GREBE.

Popular synonyms. California Grebe; Zambullidor de pico delgado (Mexico).

Podiceps auritus NUTT. Man. ii, 1834, 256 (nec *Colymbus auritus* LINN.).—AUD. Orn. Biog. v, 1839, 108, pl. 404; Synop. 1839, 358; B. Am. vii, 1844, 322, pl. 482.—LAWR. in Baird's B. N. Am. 1858, 897 (excl. syn.).

Podiceps californicus HEERM. Proc. Acad. Nat. Sci. Phila. 1854, 179; Pacific R. R. Rep. x, 1859, 76, pl. 8 (young).—LAWR. in Baird's B. N. Am. 1858, 896.—BAIRD, Cat. N. Am. B. 1859, No. 707.

*An adult male killed at Washington, D. C., April 21, 1885, had the unfeathered parts colored somewhat differently, as follows: Bill black, with the tip and a considerable portion of the base of the lower mandible pale lilac-gray; line of bare skin running from rictus to eye, pale lake-red: iris scarlet-lake, with a narrow ring of white next to pupil; outer side of tarsus and under side of toes, black; inner side of tarsus and upper surface of toes grayish white, tinged with bluish, especially on toes, the innermost of which was tinged with salmon-color.

Podiceps (Proctopus) californicus COUES, Proc. Acad. Nat. Sci. Phila. 1862, 231, 404.
Podiceps auritus, var. *californicus* COUES, Key, 1872, 337; Check List, 1873, No. 612; Birds N. W. 1874, 733.—HENSH. Zoöl. Wheeler's Exp. 1875, 489.
Podicipes auritus californicus COUES, 2d Check List, 1882, No. 850.
Dytes nigricollis californicus RIDGW. Nom. N. Am. B. 1881, No. 733 *a*.
Dytes nigricollis b. *californicus* B. B. & R. Water B. N. Am. ii, 1884, 434.
Colymbus nigricollis californicus RIDGW. Proc. U. S. Nat. Mus. viii, 1885, 356; Man. N. Am. B. 1887, 6.—A. O. U. Check List, 1886, No. 4.
Podiceps auritus β *californicus* RIDGW. Orn. 40th Par. 1877. 642.

HAB. Northern and western North America, north to Great Slave Lake, south to Guatemala, and east to Mississippi Valley. Breeds nearly throughout its range.

SP. CHAR. *Adult, breeding-plumage:* Head, neck, and upper parts dull black; on each side of the head, behind the eyes, and occupying the whole of the postocular and auricular regions, a flattened tuft of elongated, narrow, and pointed feathers of an ochraceous color, those of the lower part of the tuft inclining to rufous or ferruginous, those along the upper edge straw-yellow or buff, sometimes, but rarely, forming a rather well-defined streak; fore part of the head sometimes inclining to grayish or smoky dusky. Upper parts blackish dusky, the secondaries—sometimes also the inner primaries—mostly or entirely white. Lower parts satiny white, the sides mixed chestnut-rufous and dusky. Bill deep black; iris bright carmine, with an inner whitish ring; legs and feet "dusky gray externally, greenish gray on the inner side" (AUDUBON). *Winter plumage:* Pileum, nape, and upper parts sooty slate or plumbeous-dusky; malar region, chin, and throat white; auricular region white, sometimes tinged with pale grayish buff or light grayish; fore part and sides of the neck pale dull grayish; lower parts satiny white, the sides plumbeous-dusky. "Upper mandible greenish black, growing pale ashy olive-green on basal third of the commissure (broadly) and on the culmen; lower mandible ashy olive-green, paler below, and more yellowish basally; iris bright orange-red, more scarlet outwardly, and with a fine thread-like white ring around the pupil; tarsi and toes dull blackish on the outer side, passing on the edges into olive-green; inner side dull light yellowish green; inner toe apple-green."* *Young, first plumage:* Similar to the winter adult, but colors more brownish. *Downy young:* Top of the head, as far down as the auriculars, dusky, the forehead divided medially by a white line, which soon separates into two, each of which again bifurcates on the side of the crown (over the eye), one branch running obliquely downward and backward to the sides of the nape, the other continued straight back to the occiput; middle of the crown with a small oblong or elliptical spot of bare reddish skin. Suborbital, auricular, and malar regions, chin, and throat immaculate white; fore-neck pale grayish; lower parts white; becoming grayish laterally and posteriorly; upper parts dusky grayish.

Total length, about 13.00 inches; extent, 21.00; wing, about 5.20–5.50; culmen, .95–1.10.

Although possibly breeding in Illinois, the American Eared Grebe is known only as a transient (spring and fall) visitor, or occasional winter resident. Its habits, which are essentially like those of other species, are very interestingly described by Col. N. S. Goss, in *The Auk* for January, 1884 (pp. 18–20), to whose very interesting account the reader is referred.

*Fresh colors of a specimen (adult male) obtained by the writer at Pyramid Lake, Nevada, December 21, 1867.

GENUS **PODILYMBUS** LESSON.

Podilymbus LESSON, Traité, i, 1831, 596. Type, *Podiceps carolinensis* LATH., = *Colymbus podiceps* LINN.

Sylbeocyclus BONAP. Saggio, 1832, 144 (same type; cf. SCL. Ibis, 1874, p. 98).

GEN. CHAR. Size medium (wing about 4.50-5.00 inches); bill much shorter than the head, very stout, the length of the culmen less than twice the basal depth; the culmen much curved terminally; tarsus shorter than the middle toe without claw. No tufts in summer plumage, but bill parti-colored, and throat ornamented by a black patch.

Only one species of this genus is known, although the South American bird is considered by some authors distinct from that of North America, under the name *P. antarcticus* (Less.).

Podilymbus podiceps (Linn.)

PIED-BILLED GREBE.

Popular synonyms. Thick-billed Grebe; Carolina Grebe; Water Witch; Di-dipper; Hell-diver; Zambullidor de pico grueso (Mexico).

Colymbus podiceps LINN. S. N. ed. 10, i, 1758, 136; ed. 12, i, 1766, 223 (based on *Podiceps minor rostro vario*, CATESBY, Carol 91.—*Colymbus fluviatilis carolinensis*, BRISS. Orn. vi, 1760, 63).

Podilymbus podiceps LAWR. in Baird's B. N. Am. 1858, 898—BAIRD, Cat. N. Am. B. 1859, No. 709.—COUES, Key, 1872, 338; Check List, 1873, No. 614; 2d ed. 1882, No. 852; Birds N. W. 1874, 737.—HENSH. Zoöl. Wheeler's Exp. 1875, 490.—RIDGW. Orn. 40th Par. 1877, 643; Nom. N. Am. B. 1881, No. 735; Man. N. Am. B. 1887, 6.—B. B. & R. Water B. N. Am. ii, 1884, 440.—A. O. U. Check List, 1886, No. 6.

Podilymbus podicipes COUES 2d Check List, 1882, No. 852.

Podiceps ludovicianus LATH. Ind. Orn. ii 1790, 785.

Podiceps carolinensis LATH. l. c.—SW. & RICH. F.-B. A. ii, 1831, 412.—NUTT. Man. ii, 1834, 259.—AUD. Orn. Biog. iii, 1835, 359; Synop. 1839, 358; B. Am. vii, 1844, 324, pl. 483.

Podilymbus lineatus HEERM. Proc. Acad. Nat. Sci. Phila. 1854, 179; Pacific R. R. Rep. x, 1859, 77, pl. 9, (young).

Podiceps antarcticus LESS. Rev. Zoöl. 1842, 209.

Podilymbus antarcticus GRAY, Hand-list, iii, 1871, 95, No. 10,771.

Podilymbus podiceps, b. *antarcticus* COUES, Birds N. W. 1874, 737.

Podiceps brevirostris GRAY, Gen. B. iii, 1839, pl. 172.

HAB. Whole of temperate North America, Middle America, West Indies, and greater part of South America, breeding nearly throughout its range. South to Brazil, Buenos Ayres, and Chili, north to British Provinces. Bermudas.

SP. CHAR. *Adult, breeding plumage:* Chin, throat, and a spot at the base of the mandible, black; rest of the head and neck brownish gray, darker on the pileum and nape, lighter on the sides of the head, the malar region light ashy, streaked with dusky. Upper parts uniform dusky grayish brown, the remiges paler, the inner webs of the secondaries tipped with white; lower parts grayish white, everywhere spotted with dusky grayish. Bill milk-white, crossed past the middle by a black band, the terminal portion more bluish; eyelids white; naked lores bluish; iris rich dark brown, with a narrow outer ring of ochraceous-white, and an inner thread-like ring of pure white; tarsi and toes greenish slate-black on the outer, plumbeous on the inner side.[1] *Winter plumage:* Head and neck dull brownish, darker on the pileum and nape, and becoming white on the chin and throat (sometimes also

[1] Fresh colors of an adult female killed March 24 at Carson City, Nevada.

on the malar region); lower parts silvery white, brownish laterally and posteriorly; upper parts as in the summer plumage. Bill horn-color, becoming blackish basally and on the culmen; lower mandible more lilaceous, with a dusky lateral stripe; iris of three distinct colors, disposed in concentric rings, the first (around the pupil) clear milk-white, the next dark olive-brown, the outer pale ochraceous-brown, the dark ring reticulated into the lighter; tarsi and toes greenish slate, the joints darker.[1] *Young, first plumage:* Similar to the winter dress, but sides and under part of the head white, indefinitely striped with brown, the throat sometimes immaculate. *Downy young:* Head and neck distinctly striped with white and black; a spot of rufous on the middle of the crown, one on each side the occiput, and one on the upper part of the nape; the latter confluent with two white stripes running down the nape, the others entirely surrounded with black; upper parts blackish dusky, marked with four longitudinal stripes or lines of grayish white running the whole length of the body; lower parts immaculate white medially, dusky grayish anteriorly, laterally, and posteriorly.

Total length, about 13.25 to 15.00 inches; extent, 20.00—23.00; wing, 4.50—5.00; culmen, .75; depth of bill at base, .45; tarsus, 1.40; middle toe, without claw, 1.80.

I am unable to discover any tangible difference between several South American examples, in different stages of plumage, and North American specimens, and can therefore see no reason for admitting the so-called *P. antarcticus* (Less.).

The Pied-billed Grebe, according to Professor Cooke,[2] "winters wherever there is open water, from Illinois southward, and breeds from southern Indiana, Illinois, Missouri, and eastern Kansas northward." It breeds, however, very much farther southward than the limit above indicated, environment far more than latitude being the controlling factor.

"Mr. N. B. Moore, writing from Sarasota Bay, Florida, states that in the spring of 1870 he killed a bird of this species in which he found an egg of nearly full size; and in a day or two afterward found her nest, containing one egg. In April, 1873, he found another nest on the same pond. The young, five in number, stood in the nest uttering a faint peep, something like the cry of a very young duckling. They all toddled overboard on his approach. The terrified mother in the meanwhile was swimming rapidly about, frequently diving and uttering sad notes of alarm, with scarcely a feather of her back above the water. The nest was composed of broken stems of dog-fennel, matted together with a large portion of decayed and withered aquatic plants, presenting, when found, a wet, black, and soggy bed, to all appearances as uncomfortable a nest as ever fell to the lot of delicate and beautiful downy creatures such as these were. The nest was ten yards from the shore, within the pond, and situated in a thick clump of erect dead stems of the fennel

[1] From a specimen killed November 18, 1867, at Truckee Meadows, Nevada.
[2] *Bird Migration in the Mississippi Valley*, page 54.

where it rested on the bottom of the pond, the water being about eight inches deep. The part above the water was circular, twelve inches in breadth, the central depression being rather shallow, and an inch in depth and five or six in breadth. There was no lining, and the whole presented an appearance of solidity resembling masonry. The upper part of the rim was only about two and one half inches above the surface of the pond, and could not possibly have floated had the water risen to any height. When about three weeks old the young dive for their own food, though the mother feeds them long afterward. The young have been caught as late as September 15, and it is probable that this bird has two or three broods in a season. * * * *

"These birds are usually perfectly fearless, swimming quite near to the spectator, and trusting to their power of diving to escape from danger. They become suspicious, however, after having been shot at. They can swim to a long distance under water, merely raising the bill above the surface occasionally, and they are somewhat nocturnal in habit. In the spring they make a loud and sonorous braying noise. They feed on small fish and insects, and prefer to hunt for them in places covered with dense aquatic vegetation, being chiefly fresh-water birds, though seeking the bays in the winter. This bird has the singular habit, in common with all the other Grebes, of sinking down gradually and backwards into the water until it entirely disappears, not leaving a ripple on the surface. This it does in order to escape, when not compelled to dive quickly." (*Water Birds of North America*, Vol. II., pp. 442, 443.)

INDEX.

Actidurus nævius, 68.
Actitis, 33, 67.
  macularia, 67.
Actiturus bartramius, 66.
Actochelidon, 240, 243.
Actodromas, 33, 45.
  acuminata, 46.
  bairdii, 45, 48.
  bonapartei, 47.
  cooperi, 45.
  fuscicollis, 45, 47.
  maculata, 46.
  minutilla, 46, 49.
Æchmophorus, 258.
Ægialitis, 22, 25, 28.
  alexandrina, 28.
  alexandrina nivosa, 29.
  dubia, 28.
  hiaticula, 28.
  meloda, 28.
  meloda circumcincta, 28, 30.
  mongola, 29.
  semipalmata, 28, 29.
  vocifera, 26.
Æthyia americana, 157.
  vallisneria, 159.
Aigrette d' Amerique, La Grande, 124*.
  rousse, de la Louisiane, 126*.
Aix, 104, 152.
  sponsa, 153.
Ajaja, 102*.
  ajaja, 103*.
  rosea, 103*.
Alcatráz, 199.
Alcidæ, 251.
Alectorides, 82.
Anas, 104, 126, 127.
  acuta, 146, 147.
  adunca, 127.
  alandica, 147.
  albeola, 170.
  americana, 135, 141, 142.
  anser, 115.
  beringii, 178.
  bernicla, 118, 122, 125.
  boschas, 126, 127.
  brachyrhynchos, 174.
  bucephala, 170.
Anas cærulescens, 110.
  cagolca, 141.
  canadensis, 118, 119.
  capensis, 139.
  carolinensis, 135.
  caudacuta, 147.
  caudata, 147.
  cinerea, 139.
  clangula, 165, 166.
  clypeata, 150, 151.
  collaris, 164.
  columbianus, 107.
  crecca, 134, 135.
  (Boschas) crecca, 135.
  cyanoptera, 131, 133.
  cygnus, 105.
  discors, 131.
  domestica, 127.
  (Bochas) domestica, 127.
  fera, 127.
  ferina, 156, 157.
  fuligula, 161, 164.
  fusca, 181.
  galericulata, 152.
  glacialis, 173, 174.
  histrionica, 171, 172.
  hyemalis, 174.
  hyperboreus, 114.
  islandica, 168.
  jamaicensis, 185.
  kekuschka, 139.
  longicauda, 147, 174.
  mail, 139.
  marila, 161, 162.
  mexicana, 151.
  miclonia, 174.
  minuta, 172.
  mollissima, 175, 176, 177.
  nigra, 179, 180.
  nivalis, 114.
  obscura, 127, 130
  penelope, 141.
  perspicillata, 182, 183.
  querquedula, 131.
  rafflesi, 133.
  rubens, 151.
  rubida, 185.
  (Fuligula) rufitorques, 164.

Anas rustica, 170.
sparrmanni, 147.
spectabilis, 178.
sponsa, 152, 153.
strepera, 138, 139.
strepera americana, 139.
(Chauliodus) streperus, 139.
superba, 178.
sylvatica, 135.
vallisneria, 159.
Anatidæ, 103.
Anatinæ, 103, 104, 126.
Ancylocheilus, 33.
Anhinga, 207.
American, 207.
anhinga, 207.
Anhingas, 207.
Anhingidæ, 193, 207.
Anous, 220.
Ansar salvage, 116.
Anser, 104, 115.
albatus, 114.
albifrons, 116.
albifrons gambeli, 116.
bernicla, 125.
brenta, 125.
cærulescens, 111.
canadensis, 119.
cinereus, 115.
erythropus, 116.
frontalis, 116.
gambeli, 116.
hutchinsii, 122.
hyperboreus, 110, 111, 113.
hyperboreus albatus, 114.
leucopareius, 122.
leucopsis, 118.
rossii, 110.
torquata, 125.
Anseres, 102.
Anserinæ, 103, 104, 110.
Aphriza, 20.
Aphrizidæ, 18, 20.
Apipisca, 234.
grande de alas largas, 233.
Aramidæ, 82.
Ardea, 117*, 118*, 119*.
alba, subsp. galatea, 124*.
americana, 99.
americana cinerea, 129*.
ardesiacea, 129*.
cærulea, 128*, 129*.
cærulea var. alba, 129*.
cærulea var. cyanopus, 129*.
cærulescens, 129*.
callocephala, 135*.
cana, 133*.
canadensis, 100.
cancrophagus brasiliensis, 129*.
candidissima, 125*.
carolinensis, 125*.
cayennensis, 135*.
chalybea, 129*.
chloroptera, 131*.
Ardea cinerea, 118*, 119*.
cœrulea, 128*.
cristata, 129*.
cubensis, 127*.
cyanopus, 129*.
discolor, 133*.
egretta, 123*, 124*.
exilis, 139*.
gardeni, 133*.
garzetta, 125*.
grus, 98.
herodias, 120*, 121*.
hoactle, 133*.
hudsonius, 121*, 138*.
javanica, 130*.
lactea, 125*.
lentiginosa, 138*.
lessoni, 121*.
leuce, 124*.
ludoviciana, 131*.
(Grus) mexicana, 99.
mexicana cinerea, 129*
minor, 138*.
minuta, 139*.
mokoko, 138*.
mugitans, 138*.
nævia, 133*.
nivea, 125*.
nycticorax, 132*, 133*.
occidentalis, 119*, 121*.
oula, 125*.
pealei, 127*.
(Dichromanassa) pealei, 127*.
rufa, 126*.
rufa var. pealei, 127*.
rufescens, 126*, 127*.
sexsetacea, 135*.
spadicea, 139*.
stellaris, 137*, 138*.
stellaris canadensis, 138*.
stellaris cristata americana, 135*.
stellaris minima, 131*.
sturmi, 139*.
thula, 125*.
violacea, 135*.
virescens, 130*, 131*.
virgata, 131*.
wardi, 119*.
wuerdemanni, 119*, 120*.
Ardeidæ, 116*, 117*.
Ardeinæ, 117*.
Ardetralla, 139*.
Ardeola, 139*.
Ardetta, 137*, 139*.
exilis, 139*.
Arenaria, 20.
interpres, 20.
Aristonetta, 156, 159.
vallisneria, 159.
Arquatella, 33, 43.
maritima, 44.
Assemblyman, 181.
Atricilla, 222.
catesbœi, 222, 233.

Atricilla macroptera, 233.
minor, 233.
Avocet, American, 74.
Avocets and Stilts, 74.
Aythya, 104, 156, 157.
affinis, 162, 163.
americana, 157, 165.
collaris, 162, 164, 165.
erythrocephala, 157.
ferina americana, 157.
marila, 161.
marila nearctica, 161, 162.

Bald-crown, 143.
Bald-face, 143.
Bald-head, 143.
Baldpate, 143.
Bartramia, 33, 65.
laticauda, 65.
longicauda, 66.
Batter Scoot, 185.
Beach Bird, 29.
Bec à Lancette, 207.
Beetle-head, 23.
Bernicla, 118.
barnstoni, 120.
brenta, 125.
canadensis, 119.
canadensis hutchinsii, 122.
canadensis leucopareia, 123.
hutchinsii, 122.
leucopareia, 123.
melanopis, 125.
Bihoreau de Cayenne, 135*.
Bird, Brant, 20.
Quâ, 133*.
Tortoise-shell, 139*.
Birds, Diving, 251.
Gallinaceous, 3.
Bittern, 138*.
American, 138*.
American Least, 139*.
Least, 139*.
Little, 139*.
Little Yellow, 139*.
Minute, 139*.
Tortoise-shell, 139*.
Bitterns, 137*.
Black-breast, 23.
Black-head, Big, 162.
Little, 163.
Ring billed, 164.
Black Jack, 164.
Blasipus, 222.
Blather-scoot, 185.
Blossom-bill, 183.
Blue-bill, Big, 162.
Lake, 162.
Little, 163.
March, 163.
Mud, 163.
Ring-necked, 164.
River, 163.
Blue-wing, 131.
Blue Peter, 88.
Bob-white, 15.
Bog-bull, 138*.
Bog-bumper, 138*.
Bog-sucker, 34.
Bonasa, 7.
umbellus, 8.
umbellus sabini, 8.
umbellus umbelloides, 8.
Booby, 129*, 131*.
Bosun, 216.
Botaurinæ, 117*, 137*.
Botaurus, 137*.
adspersus, 138*.
exilis, 139*.
Freti-Hudsonis, 138*.
lentiginosus, 138*.
minor, 138*.
mugitans, 138*.
neoxenus, 139*.
Bottle-head, 23.
Brant, 116, 125.
Bald, 110.
Blue, 110.
Common, 125.
Gray, 116.
Harlequin, 116.
Pied, 116.
Prairie, 116.
Speckled, 116.
White, 113.
White-headed, 110.
Yellow-legged, 116.
Branta, 104, 118.
bernicla, 119, 125.
canadensis, 118, 119, 120, 123.
canadensis hutchinsii, 118, 122.
canadensis var. leucopareia, 123.
canadensis minima, 119, 123.
hutchinsii, 122.
hutchinsi leucoparia, 123.
minima, 123.
Brass-eye, 166.
Bristle-tail, 185.
Broad-bill, 162, 163.
Bastard, 164.
Bay, 162.
Creek, 163.
Red-headed, 157.
Broady, 151.
Brother, Sleepy, 185.
Bucephala albeola, 170.
americana, 166.
clangula, 166.
clangula americana, 166.
islandica, 168.
Buffle-head, 170.
Bull-head, 23.
Bull-neck, 159, 162.
Red-headed, 159.
Bumble-bee, 49, 53.
Buphagus, 212.
skua, 212.
Burgomaster, 224.

Butor, 137*.
americanus, 138*.
de la Baye de Hudson, 138*.
Butorides, 118*, 130*.
virescens, 131*.
Butter-ball, 170.
Butter-bill, 180.
Butter-box, 170.
Bythonessa, 184.

Caca-wee, 174.
Calidris, 33, 54.
arenaria, 55.
Calico-back, 20.
Canard Cheval, 159.
Cancroma maculata, 131*.
Canvas-back, 159.
Carbo, 202.
mexicanus, 205.
penicillatus, 202.
Catarractes, 212.
fusca, 212.
Catharacta, 212.
skua, 212.
Catoptropelicanus, 195.
Centrocercus, 7.
Cepphi, 251.
Cerceta café, 133.
comun, 131.
de listo verde, 135.
Cerconectes, 184.
Charadriidæ, 18, 22.
Charadrius, 22, 23, 24.
apricarius, 23, 24.
calidris, 55.
cinctus, 20.
dominicus, 24.
fulvus var. virginicus, 25.
helveticus, 23.
hiaticula, 28, 29.
himantopus, 75.
marmoratus, 25.
mexicanus, 76.
pluvialis, 24.
rubidus, 55.
semipalmatus, 29.
squatarola, 23.
virginicus, 24.
vociferus, 25, 26.
Charitonetta, 105, 170.
albeola, 170.
Chaulelasmus, 126, 138.
americana, 139.
streperus, 139.
Chauliodes, 138.
Chauliodus, 138.
Chen, 104, 110.
albatus, 114.
cærulescens, 110, 111.
hyperborea, 110, 113, 114.
hyperborea nivalis, 114, 115.
hyperboreus albatus, 114.
rossii, 110.
Chenopis atrata, 103.
Chicaric, 20.
Chicken, 11.
Prairie, 11.
Chroicocephalus, 222, 223.
atricilla, 233.
franklinii, 235.
philadelphia, 235.
schimperi, 235.
Ciconiæ, 101*, 113*.
Ciconiidæ, 113*.
Ciconiinæ, 113*.
Clangula, 105, 165, 173.
albeola, 170.
americana, 166.
barrovii, 168.
brachyrhynchos, 174.
faberi, 174.
glaucium, 166.
glaucium americana, 166.
hyemalis, 174.
islandica, 168.
megauros, 174.
musica, 174.
scapularis, 168.
torquata, 172.
vulgaris, 166.
Clypeata brachyrhynchos, 151.
macrorhynchos, 151.
platyrhynchos, 151.
pomarina, 151.
Cob-head, 166.
Cochleariidæ, 116*.
Coco, 103*.
Colin, 15.
Colinus, 15.
virginianus, 15.
virginianus floridanus, 16.
virginianus texanus, 16.
Columbus imber, 253.
Colymbus, 252, 258, 259.
arcticus, 255.
atrogularis, 253.
auritus, 258, 261.
borealis, 256.
caspicus, 262.
cornutus, 258, 261, 262.
cristatus, 258, 259.
fluviatilis, 258.
fluviatilis carolinensis, 264.
glacialis, 253.
holbœllii, 259, 260.
hyemalis, 253.
ignotus, 255.
imber, 252.
immer, 253.
leucopus, 255.
lumme, 256.
major, 259.
macrorhynchos, 255.
maximus, 253.
megarhynchos, 255.
microrhynchos, 256.
minor, 258.

Colymbus nigricollis californicus, 261, 262, 263.
obscurus, 262.
podiceps, 264.
rufogularis, 256.
septentrionalis, 256.
stellatus, 256.
striatus, 256.
torquatus, 253.
Compsohalieus, 202.
Coot, American, 84.
Blue, 89.
Booby, 185.
Bull, 181.
Butter-billed, 180.
Gray, 183.
Hollow-billed, 180, 183.
Horse-head, 183.
Pumpkin-blossom, 180.
Quill-tail, 185.
Skunk head, 183.
Sleepy, 185.
Spectacled, 183.
Surf, 183.
Uncle Sam, 181.
White-winged, 261.
Coots, 84.
Copper-bill, 180.
Cormorant, Double-crested, 203.
Florida, 204.
Mexican, 205.
Southern Double-crested, 204.
Cormorants, 202.
Cosmonessa, 152, 171.
Cosmonetta, 152, 171.
Coturnicops, 92, 93.
Coween, 174.
Cow-frog, 151.
Cowheen, 174.
Crab-catcher, 131*.
Crabier bleu à cou brun, 129*.
de la Louisiane, 131*.
tacheté, de la Martinique, 131*.
Crane, Brown, 99.
Great White, 99.
White, 124*.
Whooping, 99.
Cranes, 98.
Courlans, Rails, Gallinules, and Coots, 82.
Creagrus, 220.
Creaker, 46.
Crecisicus, 92, 93.
Crex, 83.
galeata, 86.
Crow, Water, 207.
Crymonessa, 173.
Crymophilus, 19, 77.
fulicarius, 77, 78.
Cub-head, 166.
Cucu, Big, 59.
Little, 61.
Cupidonia, 11.
americanus, 11.
cupido, 11.
pinnata, 11.
Curiaca de Cayenne, 114*.
Curlew, Big, 70.
Black, 110*.
Eskimo, 72.
Jack, 72.
Little, 72.
Long-billed, 70.
Pink, 103*.
Short-billed, 72.
Sickle-bill, 70.
Spanish, 108*.
Straight-billed, 57.
White, 108*.
Cyanopterus, 131.
Cygninæ, 103, 104, 105.
Cygnus americanus, 107.
bewicki, 107.
buccinator, 106.
columbianus, 107.
ferus, 107.
musicus, 107.
pasmorei, 106.
Cyrtopelicanus, 195.

Dafila, 104, 146.
acuta, 147.
acuta var. americana, 147.
Darter, 207.
Black-bellied, 207.
Delopygia, 45.
Demiegretta pealei, 127*.
rufa, 126*.
Dendragapus, 7.
Dendronessa, 152.
sponsa, 153.
Dichromanassa, 118*, 126*.
rufa, 127*.
Di-dapper, 170.
Di-dipper, 170, 261, 264.
Dinkey, 185.
Dipper, 170.
Robin, 170.
Scotch, 170.
Diver, Arctic, 255.
Black-throated, 255.
Great Northern, 253.
Red-throated, 256.
Dominicanus, 222.
Dough-bird, 72.
Dowitch, 39.
Dowitcher, 39.
Long-billed, 40.
Drake, Wild, 127.
Driver, 39.
Duck, Acorn, 153.
American Scaup, 162.
Big Fall, 162.
Big Sea, 177.
Black, 130.
Black English, 130.
Blaten, 139.
Bridal, 153.
Butter, 151, 170.
Canvas-back, 159.

Duck, Cock Robin, 191.
Creek, 139.
Crow, 84.
Daub, 185.
Deaf, 185.
Dusky, 130.
English, 127.
Fall, 164.
Fish, 188.
Flock, 162.
Fool, 185.
French, 127.
Gray, 127, 139.
Guinea, 253.
Harlequin, 172.
Heavy-tailed, 185.
Lesser Scaup, 163.
Long-tailed, 174.
Mountain, 172.
Painted, 172.
Pheasant, 147.
Raft, 162.
Red, 133.
Red-headed, 157.
Red-headed Raft, 157.
Ring-necked, 164.
Ring-necked Scaup, 164.
Rock, 172.
Rook, 185.
Ruddy, 185.
Scotch, 170.
Scoter, 180.
Sea, 183.
Sleepy, 185.
Sleigh-bell, 180.
Spine-tailed, 185.
Spirit, 170.
Squam, 177.
Summer, 153.
Surf, 183.
Swallow-tailed, 174.
Tree, 153.
Troop, 162.
Velvet, 181.
Wheat, 143.
Wild, 127.
Wood, 153, 191.
Ducks, 104, 126.
Dunlin, American, 51.
Dytes, 258, 259, 261.
auritus, 261.
nigricollis californicus, 263.

Egret, American, 124*.
Blue, 129*.
Great, 124*.
Great White, 124*.
Little, 125*.
Peale's, 126*.
Reddish, 126*, 127*.
Russet, 126*.
White-crested, 125*.
Egretta nivea, 129*.

Eider, American, 177.
King, 178.
Ereunetes, 33, 52.
occidentalis, 54.
petrificatus, 52, 54.
pusillus, 53, 54.
pusillus occidentalis, 54.
Erionetta, 176, 178.
Erismatura, 105, 184.
rubida, 185.
Erodiscus, 139*.
Eudocima, 107*.
Eudocimus, 107*.
albus, 108*.
longirostris, 108*.
Eudytes, 252.
Eurynorhynchus, 34.
Exanthemops, 110.

Falcinellus, 109*.
igneus, 110*.
Fan-crest, 191.
Fitzy, 180.
Florida, 118*, 128*.
cærulea, 129*.
Fly-up-the-Creek, 131*.
Fregatidæ, 193.
Fulica, 84.
americana, 84.
atra, 84.
chloropus, 86.
martinica, 88.
noveboracensis, 92, 95.
wilsoni, 84.
Fulicinæ, 83, 84.
Fuligula, 156, 161.
affinis, 163.
albeola, 170.
americana, 157, 180.
(Oidemia) americana, 180.
barrovii, 168.
bimaculata, 181.
clangula, 166, 168.
collaris, 164.
ferina, 157.
ferina americana, 157.
fusca, 181.
(Oidemia) fusca, 181.
glacialis, 174.
(Harelda) glacialis, 174.
histrionica, 172.
(Clangula) histrionica, 172.
marila, 162, 163.
minor, 163.
mollissima, 177.
(Somateria) mollissima, 177.
perspicillata, 183.
(Oidemia) perspicillata, 183.
rubida, 185.
(Gymnura) rubida, 185.
rufitorques, 164.
spectabilis, 178.
(Somateria) spectabilis, 178.
vallisneria, 159.

Fulix, 161.
affinis, 163.
collaris, 164.
marila, 162.
Futes, 72.

Gadwall, 139.
Galambas, 114*.
Gallinæ, 3.
Gallinago, 32, 36.
delicata, 37.
media wilsoni, 37.
wilsoni, 37.
Gallinula, 83, 86.
chloropus, 86.
galeata, 86.
martinica, 88.
porphyrio, 88.
Gallinule, American, 86.
Florida, 86.
Purple, 88.
Scarlet-fronted, 86.
Gallinules, 83.
Gallinulinæ, 83, 86.
Gambetta flavipes, 61.
melanoleuca, 59.
Gannet, 114*, 241, 243.
Gar-bill, 189.
Garrot, Rocky Mountain, 168.
Garza azul, 129*.
blanca chica, 125*.
blanca grande, 124*.
Garzetta, 118*, 125*.
candidissima, 125*.
Garzon, 114*.
Gaulin, Black-legged, 125*.
Gavia, 219.
Gavina, 222.
Gaviota, 233, 243.
Geese, 104, 110.
Gelochelidon, 220, 238.
agraria, 239.
anglica, 238.
balthica, 239.
meridionalis, 238, 239.
nilotica, 238.
palustris, 239.
Glaucion, 165.
Glaucionetta, 101, 165.
clangula americana, 166.
islandica, 166, 168.
Glaucus, 222.
Godwit Hudsonian, 58.
Marbled, 57.
Goëland á manteau gris, 229.
Golden-eye, American, 166.
Barrow's, 168.
Rocky Mountain, 168.
Golondrina de mar, 249.
Google-nose, 183.
Goosander, Red-breasted, 189.
Goose, American White-fronted, 116.
Goose, Bay, 119, 122.
Big Wild, 119.
Blue, 110.
Blue-winged, 110.
Brant, 125.
Brent, 125.
Cackling, 123.
Canada, 119.
Chornie, 123.
Common Wild, 119.
Cravat, 119.
Eskimo, 122.
Greater Snow, 114.
Hutchins's, 122.
Laughing, 116.
Lesser Canada, 122.
Lesser Snow, 113.
Little Cackling, 123.
Little White-cheeked, 123.
Little Wild, 122.
Marsh, 122.
Mexican, 114.
Mud, 122.
Nigger, 203, 204.
Prairie, 116, 122.
Red, 114.
Reef, 119.
Small Gray, 122.
Snow, 114.
Texas, 114.
White-headed, 110.
Yellow-legged, 116.
Graculus dilophus, 203.
dilophus var. floridanus, 204.
floridanus, 204.
mexicanus, 205.
Gray-back, 39, 42.
Greater, 40.
Greaser, 185.
Great Head, 166.
Grebe, American Eared, 262.
American Red-necked, 259.
California, 262.
Carolina, 264.
Cooper's, 259.
Dusky, 261.
Holbœll's, 259.
Horned, 261.
Pied-billed, 264.
Sclavonian, 261.
Thick-billed, 264.
Grebes, 258.
Grecian Lady, 207.
Green-head, 127.
Green-wing, 135.
Grouse, 6.
Drumming, 8.
Partridges and Quails, 6.
Pinnated, 11.
Prairie Sharp-tailed, 13.
Ruffed, 8.
Ruffled, 8.
Willow, 10.

Grues, 82.
Gruidae, 82, 98.
Grus, 98.
americana, 98, 99, 100.
canadensis, 98, 100.
canadensis mexicana, 99.
fusca, 100.
mexicana, 98, 99.
hoyanus, 99.
pratensis, 100.
Guara, 107*.
alba, 107*, 108*.
rubra, 107*.
Guarinæ, 106*, 107*.
Gull, American Herring, 230.
Black-backed, 227.
Black-headed, 233.
Bonaparte's, 235.
Farmer, 227.
Fork-tailed, 237.
Franklin's, 234.
Franklin's Rosy, 234.
Glaucous, 224.
Gray, 228, 230.
Herring, 228.
Hooded, 234.
Hutchins's, 224.
Iceland, 225.
Kittiwake, 221.
Laughing, 233.
Ring-billed, 232.
Sabine's, 237.
Sea, 228, 230.
Skua, 212.
Summer, 246.
White, 224.
White-winged, 225.
Winter, 221.
Gulls, 219, 220.
and Terns, 219.
Gull-chaser, 212, 214.
Gull-hunter, 214.
Gymnura, 184.

Hæmatopodidæ, 18.
Hairy-head, 191.
Haliplana, 240, 241.
Hard-tack, 185.
Harelda, 173.
glacialis, 174.
hyemalis, 174.
Hell-diver, 261, 264.
Helodromas, 33, 59, 62
Hen, Indian, 138*.
Herodias, 118*, 123*.
alba egretta, 124*.
egretta, 124*.
egretta var. californica, 124*.
poucheti, 129*.
Herodii, 101*, 116*.
Herodiones, 101*.
Heron, American Black-crowned Night, 133*.
Black-crowned Night, 133*.
Heron, bleuâtre de Cayenne, 129*.
Blue, 129*, 131*.
Cayenne Night, 135*.
Gardenian Night, 133*.
Great Blue, 121*.
Great White, 124*.
Green, 131*.
Little Blue, 129*.
Little White, 125*, 129*.
Louisiana, 131*.
Snowy, 125*.
White-crowned Night, 135*.
Wuerdemann's, 120*.
Yellow-crowned Night, 135*.
Herons, 117*.
and Boatbills, 116*.
Storks, Ibises, etc., 101*.
True, and Egrets, 117*.
Heteractitis, 33.
Heteropygia, 45.
Hickory-head, 185.
Himantopus, 74, 75.
mexicanus, 76.
nigricollis, 76.
Hirondelle de Mer de Cayenne, 243.
la Grande, 243.
Histrionicus, 105, 171.
histrionicus, 172.
minutus, 172.
torquatus, 172.
Honker, 119.
Horse-head, 183.
Hound, 174.
Hydranassa, 118*.
Hydrochelidon, 220, 248.
fissipes, 249.
lariformis, 249.
lariformis surinamensis, 249.
nigra, 249.
nigra surinamensis, 249.
plumbea, 249.
surinamensis, 249.
Hypoleucus, 202.

Ibidæ, 101*.
Ibididæ, 101*, 106*.
Ibidinæ, 106*.
Ibis alba, 108*.
Bay, 110*.
blanco, 108*.
Brown, 108*.
falcinellus, 110*.
falcinellus var. ordii, 110*.
Glossy, 110*.
Gray, 108*.
Green, 110*.
guarauna, 111*.
nandapoa, 114*.
nandasson, 114*.
ordii, 110*.
peregrina, 111*.
White, 108*.
Wood, 114*.

Ibises, 106*.
Wood, 113*.
Inanite pinto elote, 133*.
Ionornis, 83, 88.
martinica, 88.
Iron-head, 166.

Jacanidæ, 18.
Jaeger, Arctic, 217.
Long-tailed, 217.
Parasitic, 216.
Pomarine, 214.
Richardson's, 216.

Kill-dee, 26.
Killdeer, 26.
Kittiwake, 221.
Knot, 42.
Light-wood, 185.

Lagopus, 7, 10.
albus, 10.
lagopus, 10.
Lampronessa, 152.
Laridæ, 194, 210, 219.
Larinæ, 219, 220.
Lark, Sand, 67.
Laroides, 222.
americanus, 229.
minor, 221.
subleucopterus, 225.
Larus, 220, 222, 223.
adouini, 222.
albus, 221.
arcticus, 225.
argentaceus, 229.
argentatus, 223, 225, 228, 230.
argentatus smithsonianus, 223, 230.
argentatoides, 229, 230, 232.
argenteus, 229.
atricilla, 222, 223, 233, 234.
(Chroicocephalus) atricilla, 233.
bonapartii, 236.
borealis, 221.
canus, 221, 222, 223, 232.
capistratus, 222, 236.
catarractes, 212.
cinerarius, 221.
cinereus, 228.
cinero-caudatus, 235.
consul, 224.
crepidatus, 216, 217.
cucullatus, 235.
(Chroicocephalus) cucullatus, 235.
delawarensis, 223, 232.
fabricii, 227.
(Chroicocephalus) franklinii, 235.
fuscus, 222.
gavia, 221.
giganteus, 224.
glacialis, 224.
(Glaucus) glacialis, 225.
glaucoides, 225.
Larus, glaucus, 222, 223, 224, 225, 229.
hutchinsii, 224.
hyperboreus, 224.
islandicus, 224, 225.
(Chroicocephalus) kittlitzii, 235.
kumlieni, 223.
leuceretes, 224.
leucopterus, 223, 224, 225.
maculatus, 227.
major, 229.
marinus, 222, 223, 227, 229.
maximus, 227.
(Atricilla) megalopterus, 233.
melanorhynchus, 236.
(Atricilla) micropterus, 233.
minor, 225.
minutus, 223, 236.
modestus, 222.
mülleri, 227.
nævius, 221, 227.
niger, 227.
parasiticus, 213, 216.
philadelphia, 233, 235, 236.
(Chrœcocephalus) philadelphia, 236.
pipixcan, 235.
plumbiceps, 233.
pomarinus, 214.
ridibundus, 233.
riga, 221.
rissa, 220, 221.
sabinii, 237.
smithsonianus, 230.
(Chrœcocephalus) subulirostris, 236.
tridactylus, 220, 221.
(Rissa) tridactylus, 221.
torquatus, 221.
zonorhynchus, 232.
zonorhynchus, var. mexicanus 232.
Lawyer, 74, 76.
Leimonites, 45.
Leptopelicanus, 195, 196.
fuscus, 199.
Lestris, 213.
brachyrhynchus, 217.
brissoni, 218.
buffoni, 217.
catarractes, 212.
hardyi, 218.
lessoni, 217.
microrhynchus, 217.
parasitica, 217.
richardsoni, 216.
Leucibis, 107*.
Leucoblepharon, 118.
Leucopareia, 118.
Leucus, 222.
Light-wood Knot, 185.
Limicolæ, 18.
Limosa, 33, 56.
fedoa, 56, 57.
fœda, 57.
hæmastica, 56, 58.
scolopacea, 40.
hudsonica, 58.

Lobipes, 78.
hyperboreus, **78.**
lobatus, 78.
wilsoni, 79.
Long-beak, Greater, **40.**
Long-neck, 147.
Long-shanks, 76.
Look-up, 138*.
Loon, 253.
Arctic, 255.
Black, 203, **204.**
Black-throated, 255.
Pacific, 253.
Red-throated, 256.
Yellow-billed, 252.
Loons, 252.
Lophodytes, 105, 190.
cucullatus, 191.
Lord and Lady, 172.

Maceranas, 181.
Macrorhamphus, 32, **38.**
griseus, 39, 40.
griseus scolopaceus, 40.
scolopaceus, 39, 40.
Mallard, 127.
Black, 130.
Gray, 127.
Mareca, 126, 141.
americana, 143.
fistularis, 141.
penelope, 141, 143.
Marila, 161.
Marionette, 170.
Marlin, 57.
Marling-spike, 214, 216, 217.
Marsh-hen, 90.
Martineta cangrejero, 131*.
Megalestris, 211, 212.
skua, 212.
Melagavia, 222.
Melanetta, 181.
velvetina, 181.
Melanitta, 179, 181.
Meleagrinæ, 3.
Meleagris, 4.
americana, 5.
gallopavo, 4, 5.
gallopavo americana, **5.**
gallopavo mexicana, **4.**
ocellata, 4.
Melonetta, 173.
Merganser, 105, **187.**
American, 188.
americanus, 188.
Buff-breasted, 188.
Hooded, 191.
Red-breasted, 189.
serrator, 187, 189.
Mergansers, 105, 187.
Mergus, 252.
americanus, 187, 188.
castor americanus, **188.**
cristatus, 189.
Mergus cucullatus, 190, **191.**
leucomelas, 189.
merganser, 187, 188.
merganser americanus, **188.**
nævius, 253.
niger, 189.
serrator, 189.
Merry-wing, 166.
Microcarbo, 202.
Micropalama, 33, 40.
himantopus, 41.
Microptera americana, **35.**
Mire-drum, 138*.
Moon-bill, 164.
Morinella interpres, 20.
Morocco-jaw, 183.
Moss-head, 191.
Mouette cendrée tachetiée, 221.
Mud-hen, 84, 90.
Blue, 88.
Ivory-billed, 84.
Red-billed, 86.
White-billed, 84.
Mud-shoveller, 151.

Negroscopes, 114*.
Nettarion, 161.
Nettion, 126, 134.
carolinensis, **135.**
Noddy, 185.
Numeninæ, 34, 69.
Numenius, 34, 69.
borealis, 70, 72.
hudsonicus, 70, 73.
longirostris, 70, 111*.
occidentalis, 71.
Nyctanassa, 133*, 134*.
Nycterodius, 134*.
Nyctherodius, 134*.
violaceus, 135*.
Nyctiardea, 133*.
gardeni, 133*.
grisea nævia, 133*.
violacea, 135*.
Nycticorax, 117*, 132*, 133*.
americanus, 134*.
griseus, 134*.
griseus nævius, 133*.
nycticorax nævius, 133*.
violaceus, 135*.
vulgaris, 134*.

Ochthodromas, 23.
Odontophoreæ, 14.
Œdemia americana, 180.
fusca, 181, 182.
fusca velvetina, 182.
perspicillata, 183.
perspicillata trowbridgii, 183.
Oidemia, 105, 179.
americana, 180.
(Pelionetta) bimaculata, 181.
deglandi, 181, 182.
fusca, 181.

Oidemia perspicillata, 183.
velvetina, 181.
Old Billy, 174.
Injun, 174.
Molly, 174.
Squaw, 174.
Wife, 174.
Olor, 104, 105.
americanus, 107.
buccinator, 106.
columbianus, 106, 107.
Oniscus, 130*.
Onocrotalus, 195.
fuscus, 199.
Ortolan, 93.
Ortygometra carolina, 93.
jamaicensis, 96.
noveboracensis, 95.
Ortyx, 15.
virginianus, 16.
Otodytes, 258, 261.
Owl, Pinny, 221.
Ox-eye, 49, 53.
Oxyechus, 22, 25.
tricollaris, 22.
vociferus, 26.
Oxyura, 184.

Paddy, 185.
Paddy-whack, 185.
Pagonetta, 173.
Partridge, 8, 15.
Partridges, 14.
Patch-head, 183.
Pato boludo de cabeza café, 163.
boludo prieto, 164.
golondrino, 147.
pardo de Grupo, 139.
zambullidor de pico azul, 185.
Pavoncella, 33.
Pediocætes, 7, 12.
columbianus, 13.
phasianellus, 13.
phasianellus campestris, 13.
phasianellus var. columbianus, 13.
Pedrete de márcara, 135*.
Peep, 49, 53.
Peet-weet, 62.
Pond, 62.
River, 67.
Pelecanidæ, 193, 195.
Pelecano, 199.
Pelecanus, 195.
americanus, 196.
carbo, 202.
conspicillatus, 195.
(Carbo) dilophus, 203.
erythrorhynchos, 195, 196.
fuscus, 195, 196, 199.
hernandezii, 196.
occipitalis, 196.
onocrotalus, 195, 196.
punctatus, 202.
thagus, 196.
Pelecanus trachyrhynchus, 196.
urile, 202.
varius, 202.
Pelican, American White, 196.
Brown, 199.
Rough-billed, 196.
Wood, 114*.
Pelicans, 195.
Pelidna, 33, 51.
alpina, 51.
alpina americana, 51.
pacifica, 51.
Pelionetta, 179, 182.
perspicillata, 183.
trowbridgii, 183.
Perdicinæ, 6, 14.
Perdix virginiana, 15.
Pescadora, 139*.
Phaëthontidæ, 194.
Phalacrocoracidæ, 193, 202.
Phalacrocorax, 202.
dilophus, 202, 203.
dilophus floridanus, 202, 204.
floridanus, 204.
mexicanus, 202, 205.
pygmæus, 202.
resplendens, 205.
townsendii, 205.
Phalarope, Northern, 78.
Red, 77.
Wilson's, 79.
Phalaropes, 77.
Phalaropodidae, 19, 77.
Phalaropus, 77, 78.
cinereus, 78.
fulicarius, 77.
hyperboreus, 78.
lobatus, 78, 79.
tricolor, 79, 80.
(Hoplopodius) wilsoni, 79.
Phasiani, 3.
Phasianidæ, 3.
Phasianinæ, 3.
Phasianurus, 116.
Pheasant, 8.
Sea, 147.
Water, 147.
Pheasants, 3.
Philohela, 32, 34.
minor, 34, 35.
Phylaconetta, 171.
Picket-tail, 147.
Pike-tail, 147.
Pink-stockings, 76.
Pin-tail, 13, 147.
Pinyole, 221.
Plaster-bill, 183.
Plataleidæ, 101*, 102*.
Platypus faberi, 174.
Plegadis, 107*, 109*, 113*.
autumnalis, 110*.

Plegadis falcinellus, 110*.
guarauna, 110*.
Plotus, 207.
anhinga, 207.
melanogaster, 207.
Plover, 23.
American Golden, 24.
American Ring, 29.
Belted Piping, 30.
Black-bellied, 23.
Field, 66.
Green, 24.
Killdeer, 26.
Marsh, 46.
Prairie, 66.
Ringed Piping, 30.
Semipalmated, 29.
Semipalmated Ring, 29.
Upland, 66.
Plovers, 22.
Poacher, 143.
Pochard, American, 157.
Podasocys, 23.
Podiceps, 258, 259.
affinis, 260.
antarcticus, 264.
auritus, 262.
auritus californicus, 263.
bicornis, 262.
brevirostris, 264.
californicus, 262.
(Proctopus) californicus, 263.
carolinensis, 264.
cooperi, 260.
cornutus, 262.
cristatus, 260.
cucullatus, 260.
griseigena, 260.
griseigena holbœllii, 260.
holbœllii, 259.
ludovicianus, 264.
minor rostro vario, 264.
nigricollis, 258, 261.
occidentalis, 260.
rubricollis, 259.
rubricollis major, 259.
suberistatus, 260.
Podicipidæ, 251, 258.
Podicipedes, 251.
Podicipes cornutus, 262.
Podilymbus, 258, 264.
antarcticus, 264.
lineatus, 264.
podiceps, 264.
podiceps antarcticus, 264.
podicipes, 264.
Poke, White, 125*.
Porphyrio martinica, 88.
Porphyrula, 88.
chloronotus, 88.
Porzana, 83, 92, 93.
carolina, 93.
jamaicensis, 93, 95, 96.
noveboracensis, 93, 95
Post-driver, 138*.
Prairie Chicken, Sprig-tail, 18.
Hen, 11.
Proctopus, 258, 261.
Ptarmigan, White, 10.
Willow, 10.
Pterocyanea, 131.
cæruleata, 133.
Pullet, Indian, 138*.
Pygopodes, 251.

Quail, 15.
American, 15.
Virginia, 15.
Quails, 6.
Quâk, 133*.
Quâwk, 132*.
Querquedula, 126, 131.
carolinensis, 135.
cyanoptera, 133.
discors, 131.
Quok, 133*.

Rail, Black, 96.
Carolina, 93.
Common, 93.
Great Red-breasted, 90.
King, 90.
Little Black, 96.
Little Yellow, 95.
Red-breasted, 90.
Sora, 93.
Virginia, 91.
Yellow, 95.
Rails, Gallinules, and Coots, 83.
Ralli, 82, 83.
Rallidæ, 82.
Rallinæ, 83, 89.
Rallus, 83, 89.
aquaticus, 89.
carolinus, 93.
(Crex) carolinus, 93.
crepitans, 89, 90.
elegans, 89, 90.
jamaicensis, 92, 96.
lariformis, 249.
noveboracensis, 95.
porzana, 92.
virginianus, 89, 91.
Recurvirostra, 74.
americana, 274.
avosetta, 74.
himantopus, 76.
occidentalis, 74.
Recurvirostridæ, 19, 74.
Red-breast, 42.
Red-head, 157.
Redshanks, 243.
Rhodostethia, 220.
rosea, 237.
Rhyacophilus solitarius, 62.
Rhynchaspis, 150.
Rhyncopidæ, 210.

Ring-bill, 164.
Ring-neck, 29.
White, 30.
Rissa, 219, 220.
borealis, 221.
brevirostris, 221.
brunnichii, 221.
cinerea, 221.
gregaria, 221.
tridactyla, 221.
Round-crest, 191.
Rook, 185.
Rusticola (Microptera) minor, 35.

Saddle-back, 227.
Sanderling, 55.
Sandpeter, 247.
Sandpiper, Baird's, 48.
Bartram's, 66.
Bonaparte's, 47.
Buff-breasted, 68.
Knot, 42.
Least, 49.
Long-legged, 41.
Pectoral, 46.
Purple, 44.
Red-backed, 51.
Semipalmated, 53.
Solitary, 62.
Spotted, 64.
Stilt, 41.
Western, 54.
Wilson's, 49.
Wood, 62.
Sarcelle mâle de Cayenne, 131.
Sargento, 205.
Saw-bill, 188.
Schytepoke, 131*.
Scoldemore, 174.
Scolder, 174.
Scolopacidæ, 13, 32.
Scolopacinæ, 32, 34.
Scolopax, 32.
alba, 107*, 108*.
arquata, 69.
borealis, 72.
delicata, 37.
douglasii, 37.
drummondi, 37.
fedoa, 57.
flavipes, 61.
gallinago, 37.
grisea, 33, 39.
(Macrorhamphus) grisea, 39.
hæmastica, 58.
hudsonica, 58.
leucurus, 37.
limosa, 56.
longirostris, 40.
major, 36.
melanoleuca, 59.
minor, 34.
noveboracensis, 39.
rubra, 107*.
Scolopax semipalmata, 64.
totanus, 59.
vociferus, 59.
wilsoni, 37.
Scooper, 74.
Scotchman, 170.
Scoter, American, 180.
American Black, 180.
American Velvet, 181.
Surf, 183.
White-winged, 181.
Sea-hen, 212.
Sea-robin, 189.
Sedge-hen, 90.
Sheldrake, 188.
Buff-breasted, 188.
Hooded, 191.
Pickaxe, 191.
Pond, 191.
Red-breasted, 189.
Swamp, 191.
Wood, 191.
Shore-birds, 13.
Shot-pouch, 185.
Shovel-bill, 151.
Shoveller, 151.
Shuffler, 162.
Bay, 162.
Ring-billed, 164.
Sickle-bill, 70.
Skinner, 55.
Skua, 212.
Buffon's, 217.
Long-tailed, 217.
Pomarine, 214.
Skuas and Jaegers, 211.
Skunk-bill, 183.
Sleigh-bell Duck, 180.
Smee, 147.
Smees, 147.
Smethe, 147.
Smutty, 180.
Snake Bird, 207.
Snipe, 32, 70.
American, 37.
Blind, 34.
English, 37.
Frost, 41.
Grass, 146.
Gray, 39.
Gutter, 37.
Jack, 46.
Meadow, 46.
Mud, 34.
Red-bellied, 40.
River, 67.
Robin, 42.
Rock, 44.
Sand, 67.
Sickle-bill, 70.
Stone, 59.
White, 55, 74.
Wilson's, 37.
Winter, 44.

Snipe, Wood, 62.
Yellow-leg, 61.
Snowl, 191.
Snuff-taker, 183.
Somateria, 105, 175, 176.
dresseri, 177.
mollissima, 177.
mollissima borealis, 176.
mollissima dresseri, 177.
spectabilis, 178.
Sora, 93.
Soucrourou, 131.
South Southerly, 174.
Sowewies, 113*.
Spatula, 104, 150.
clypeata, 151.
Speckle-belly, 116, 139.
Spike-tail, 13, 147.
Spoonbill, 151.
Roseate, 105*.
Spoonbills, 102*.
and Ibises, 101*.
Sprig-tail, 147.
Squatarola, 22, 23.
helvetica, 23.
Squawk, 131*.
Squealer, 24, 172.
Stake-driver, 138*.
Steganopodes, 193.
Steganopus, 77, 79.
tricolor, 79, 80.
wilsoni, 80.
Stercorariidæ, 210, 211.
Stercorarius, 211, 213.
buffoni, 217.
catarractes, 212.
cepphus, 217.
crepidatus, 216.
longicaudatus, 217.
longicaudus, 213, 217.
parasiticus, 213, 216, 217.
pomarinus, 213, 214.
pomatorhinus, 214.
skua, 212.
(Buphagus) skua, 212.
Sterna, 220, 240, 244.
affinis, 239.
anæthetus, 241.
aranea, 238.
anglica, 238.
(Gelochelidon) anglica, 238.
antillarum, 241, 247.
argentea, 247.
bergii, 243.
cantiaca, 240, 243.
caspia, 240, 241.
(Thalasseus) caspia, 241.
caspia var. imperator, 241.
caspica, 241.
cayana, 243.
cayennensis, 243.
cristata, 243.
dougalli, 241.
Sterna erythrorhynchus, 243.
fissipes, 249.
fluviatilis, 246.
forsteri, 240, 245.
frenata, 247.
fuliginosa, 240, 241.
galericulata, 243.
havelli, 245.
hirundo, 240, 244, 245, 246.
macrotarsa, 239.
major, 241.
maxima, 240, 243.
megarhynchos, 241.
minuta, 240, 247.
nigra, 248, 249.
nilotica, 238.
paradisæa, 240, 241.
philadelphia, 235.
plumbea, 249.
regia, 241, 243.
(Thalasseus) regia, 243.
risoria, 239.
sandvicensis, 243.
sandvicensis acuflavidus, 240.
senegalensis, 246.
superciliaris, 247.
superciliaris antillarum, 247.
surinamensis, 249.
tschegrava, 240, 241.
wilsoni, 246.
Sterninæ, 219, 220, 238.
Sternula, 240, 241, 247.
antillarum, 247.
Stictocarbo, 202.
Stiff-tail, 185.
Stile, 51.
White-tail, 47.
Stilt, Black-necked, 76.
Storks and Wood Ibises, 113*.
Strepsilas, 20.
collaris, 20.
interpres, 20.
Striker, 245, 246.
Gannet, 243.
Little, 247.
Stub-and-twist, 185.
Sulidæ, 193, 194.
Swallow, Sea, 246.
Swan, American, 107.
Black, 103, 203.
Trumpeter, 106.
Whistling, 107.
Swans, 104, 105.
Geese, and Ducks, 103.
Swimmers, Lamellirostral, 102.
Long-winged, 210.
Totipalmate, 193.
Sylbeocyclus, 264.
Sylochelidon, 240, 241.
baltica, 241.
schillingi, 241.
strenuus, 241.
Symphemia, 33, 64.

Symphemia semipalmata, 64.
Tachybaptus, 258.
Tadpole, 191.
Tadorna nivea, 115.
Tagarote, 114*.
Tantalides, 109*, 113*.
Tantalinæ, 113*.
Tantalops, 113*.
Tantalus, 113*.
alber, 108*.
albus, 108*.
bengalensis, 111*.
castaneus, 110*.
coco, 108*.
falcinellus, 109, 110*.
griseus, 108*.
ichthyophagus, 114*.
igneus, 110*.
loculator, 113*, 114*.
mexicanus, 110*.
plumicollis, 114*.
viridis, 110*.
Tarrock, 221.
Tatler, Bartramian, 66.
Teal, American Green-winged, 135.
Blue-winged, 131.
Cinnamon, 133.
Green-winged, 135.
Mud, 135.
Red, 133.
Red-breasted, 133, 135.
Scotch, 170.
Summer, 131.
White-faced, 131.
Winter, 135.
Teaser, 216.
Tell-tale, 59.
Tern, American Black, 249.
Black, 249.
Caspian, 241.
Common, 246.
Forster's, 245.
Gull-billed, 238.
Havell's, 245.
Least, 247.
Marsh, 238.
Royal, 243.
Short-tailed, 249.
Wilson's 246.
Terns, 220, 238.
Tetrao albus, 10.
bonasia, 7.
cupido, 11.
lagopus, 10.
phasianellus, 12, 13.
saliceti, 10.
umbellus, 8.
virginianus, 15.
Tetraonidæ, 3, 6.
Tetraoninæ, 6.
Tetrastes, 7.
Thalasseus, 240, 241, 243.
caspius, 241.
imperator, 241.
—36
Thalasseus regius, 243.
Thalassites melanotis, 241.
Thunder-pump, 138*.
Tiltup, Pond, 62.
Tip-up, River, 67.
Totanus, 33, 59.
bartramius, 66.
chloropygius, 62.
flavipes, 59, 61.
macularius, 67.
melanoleucus, 59.
semipalmatus, 64.
(Catoptrophorus) semipalmatus, 64.
solitarius, 62.
vociferus, 59.
Tow-head, 191.
Tringa, 33, 42.
alpina, 51.
alpina var. americana, 51.
alpina pacifica, 51.
arenaria, 54, 55.
(Hemipalama) auduboni, 41.
autumnalis, 110*.
bairdii, 48.
bartramia, 66.
(Euliga) bartramia, 66.
bonapartei, 45, 47.
canutus, 42.
cinclus, 51.
cinerea, 42.
douglasii, 41.
(Hemipalama) douglasii, 41.
ferruginea, 51.
fulicaria, 77.
fuscicollis, 45, 47.
helvetica, 23.
hiaticula, 29.
himantopus, 40.
(Hemipalama) himantopus, 41.
hyperborea, 78.
hypoleuca, 67.
interpres, 20.
islandica, 42.
lobata, 78, 79.
longicauda, 65, 66.
macularia, 67.
maculata, 46.
maritima, 43, 44.
minuta, 45.
minutilla, 49.
morinellus, 20.
ochropus, 62.
pectoralis, 46.
pusilla, 49, 52, 53.
rufa, 42.
rufescens, 68.
schinzii, 47.
semipalmata, 53.
(Heteropoda) semipalmata, 53.
solitaria, 62.
squatarola, 23.
subruficollis, 68.
temminckii, 45.
wilsonii, 49.

Tringinæ, 32, 38.
Tryngites, 34, 68.
rufescens, 68.
subruficollis, 68.
Tringoides, 67.
macularius, 67.
Turkey, Colorado, 114.*
Water, 207.
Wild, 5.
Turkeys, 3.
Turnstone, 20.
Turnstones, 20.
Tympanuchus, 7, 11.
americanus, 11.
pallidicinctus, 11.

Undina, 184.
Uria, 202.
Urile, 202.
Urinator, 252.
adamsii, 252.
arcticus, 253, 255, 256.
imber, 252, 253, 256.
lumme, 253, 256.
pacificus, 253.
Urinatoridæ, 251, 252.

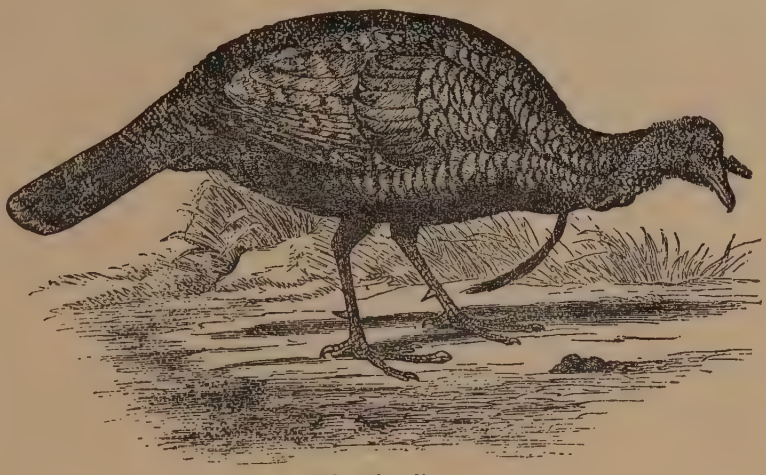
Vanellus, 22.

Walloon, 253.
Wamp, 177.
Water Witch, 264.
Water-belcher, 138.*
Wavey, 114.
Wavey, Blue, 110.
Common, 114.
Whip-tail, 217.
Whistle-wing, 166.
Whistler, 166.
White-back, 159.
White-belly, 143.
White-face, 131.
White-head, 110.
Widgeon, 141.
American, 143.
European, 141.
Gray, 139.
Green-headed, 143.
Red-headed, 141.
Wood, 153.
Wigeon, 141.
Willet, 64.
Woodcock, American, 34.
Wool-head, 170.

Xema, 220, 237.
collaris, 237.
sabinii, 237.

Yellow-bill, 180.
Yellow-legs, 61.
Big, 59.
Greater, 59.
Yelper, 59, 74.

Zambullidor de pico delgado, 262.
de pico grueso, 264.



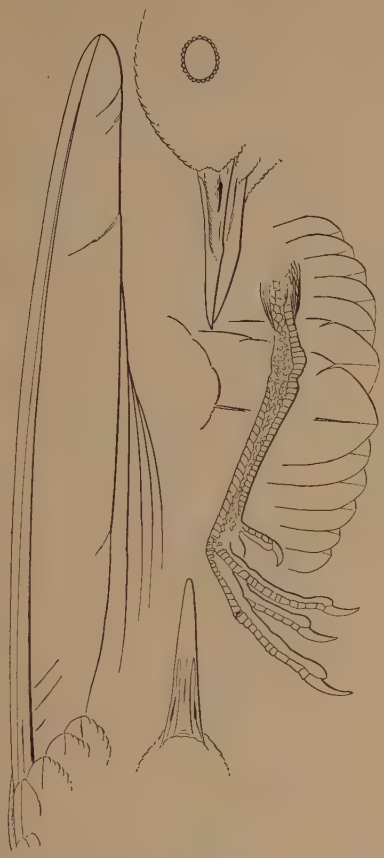
Meleagris gallopavo.

Bonasa umbellus.

Lagopus lagopus. (Winter plumage.)

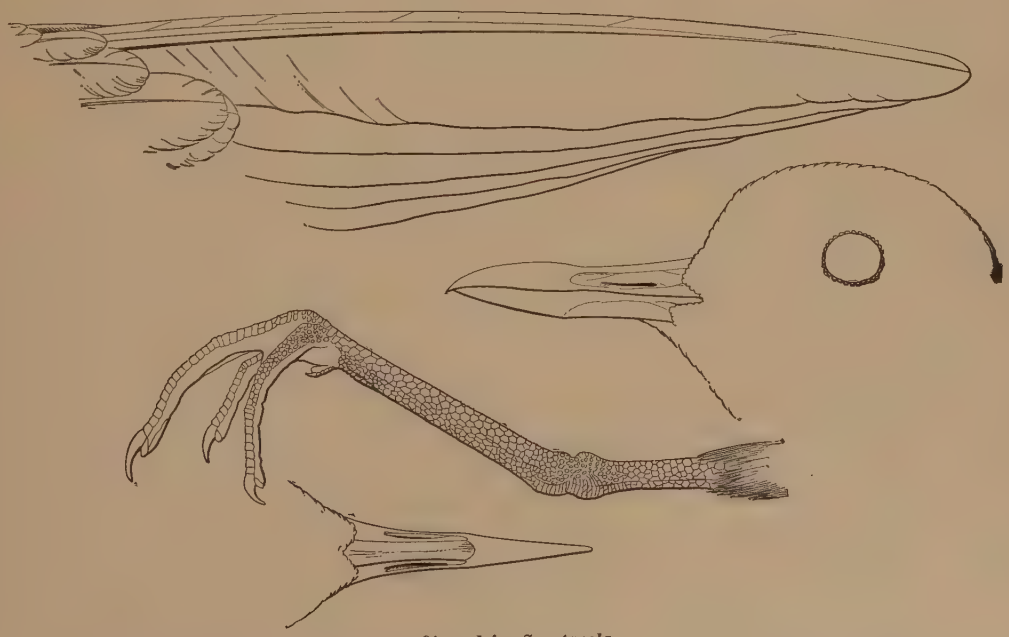
Tympanuchus americanus.

Pediocaetes phasianellus campestris.

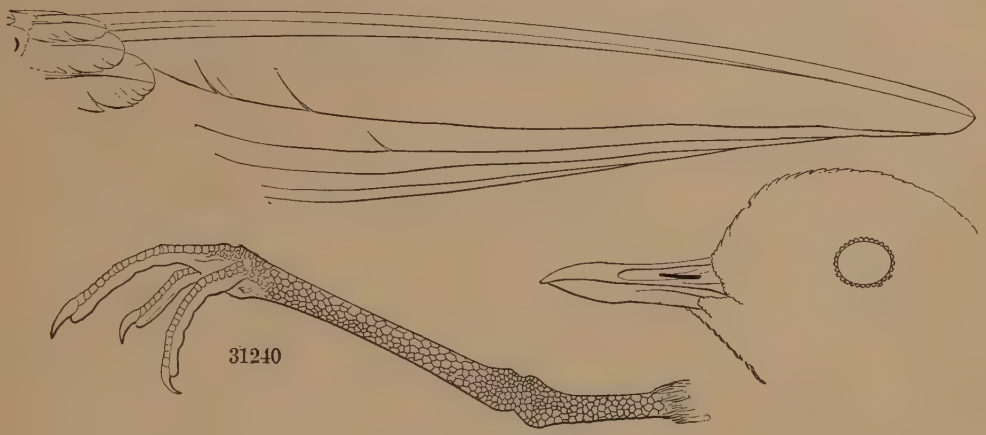


Arenaria interpres.

Colinus virginianus.

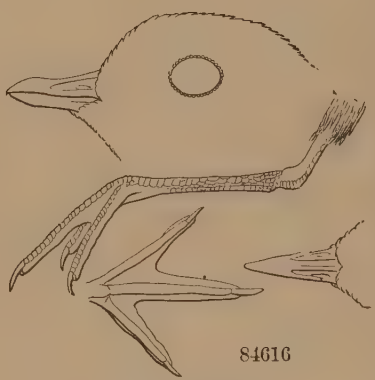


Charadrius Squatarola.

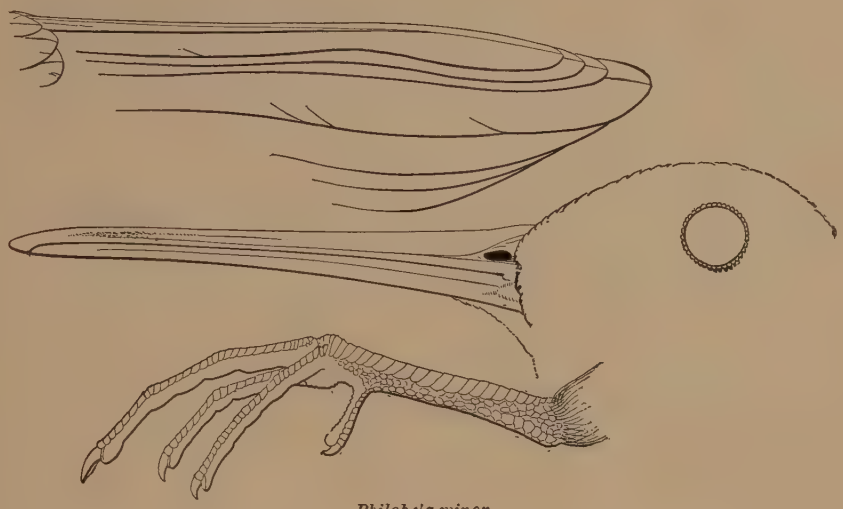


Charadrius dominicus.

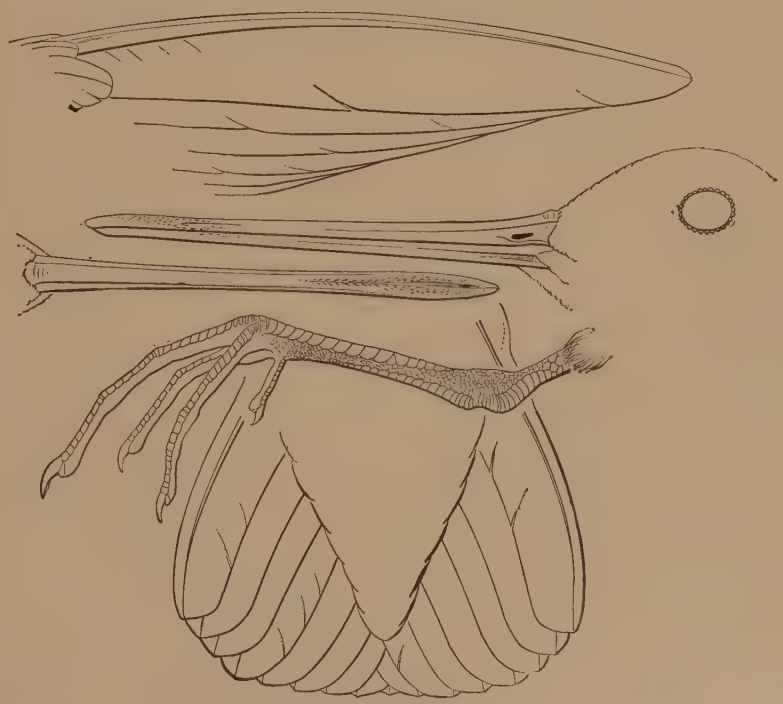
Ægialitis (Oxyechus) vocifera.



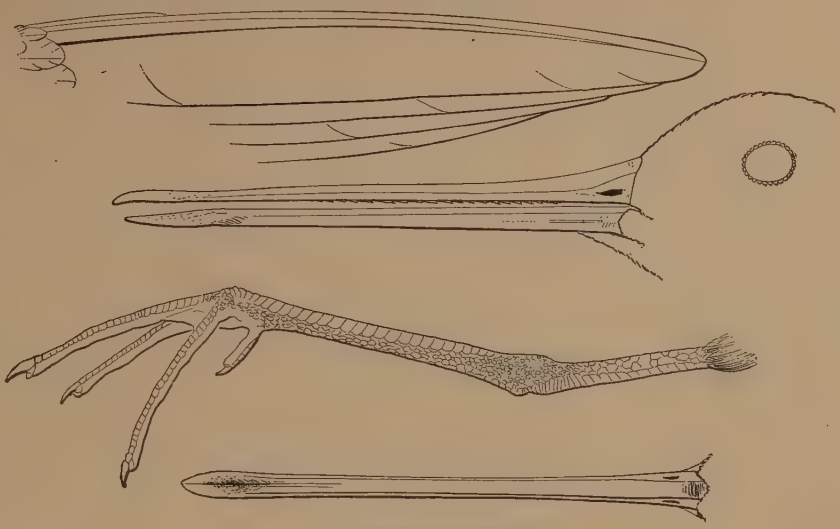
Ægialitis semipalmata.



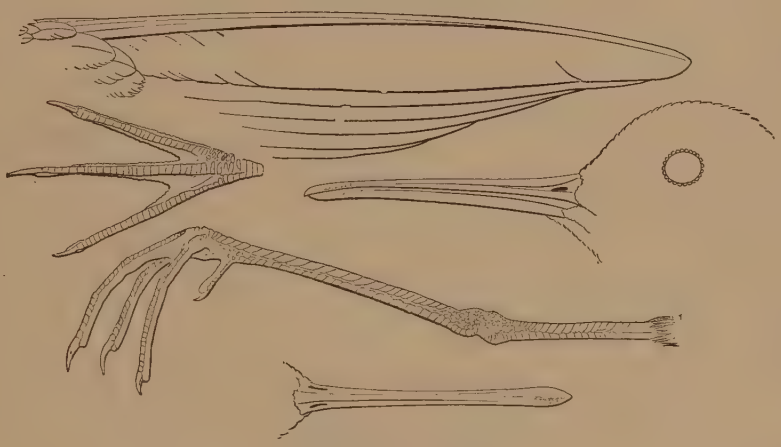
Philohela minor.



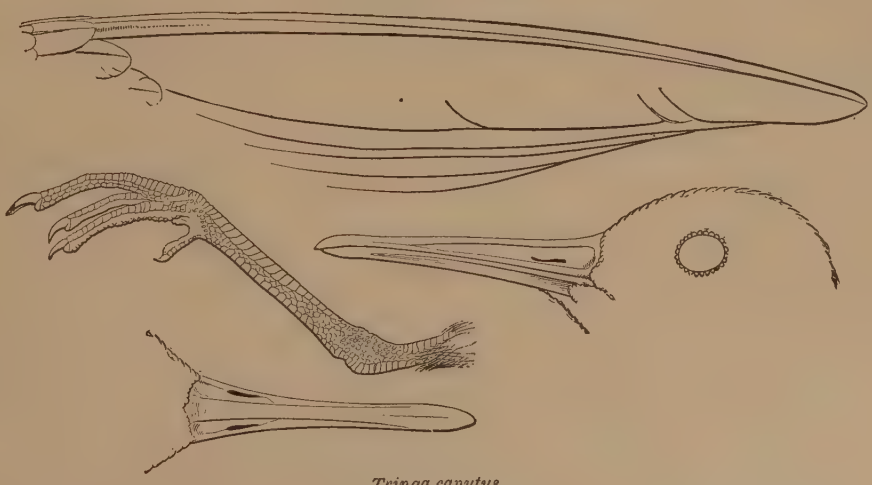
Gallinago delicata.



Macrohamphus scolopaceus.

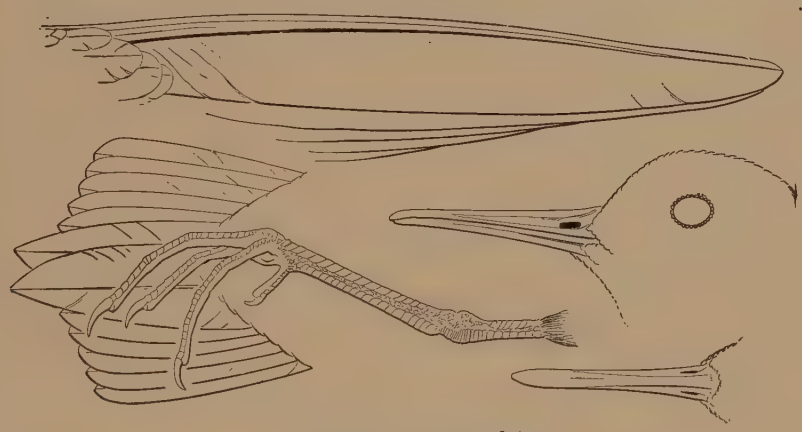


Micropalama himantopus.



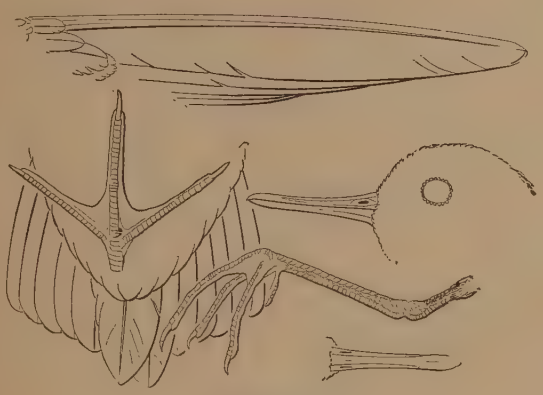
Tringa canutus.

Tirnga (Arquatella) maritima.

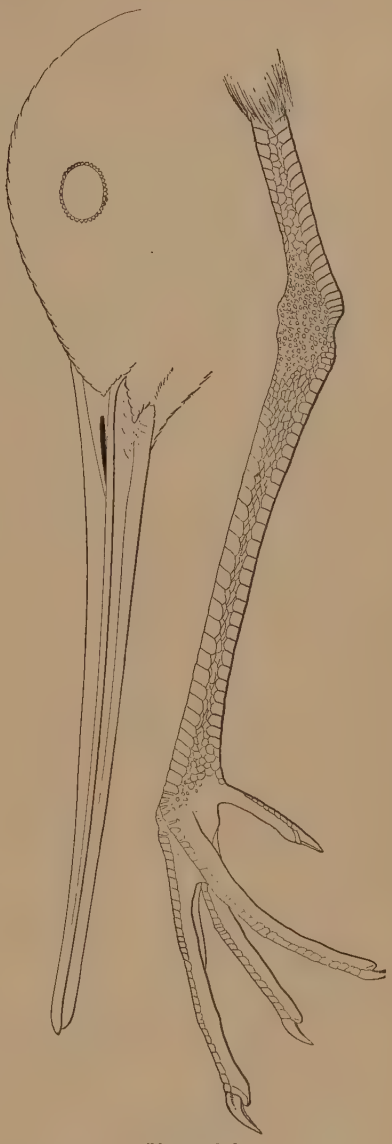


Tringa (Actodromas) maculata.

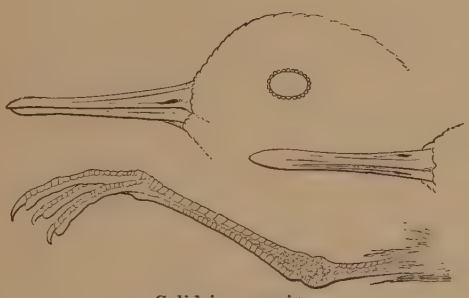
Tringa (Pelidna) alpina pacifica.



Ereunetes pusillus.



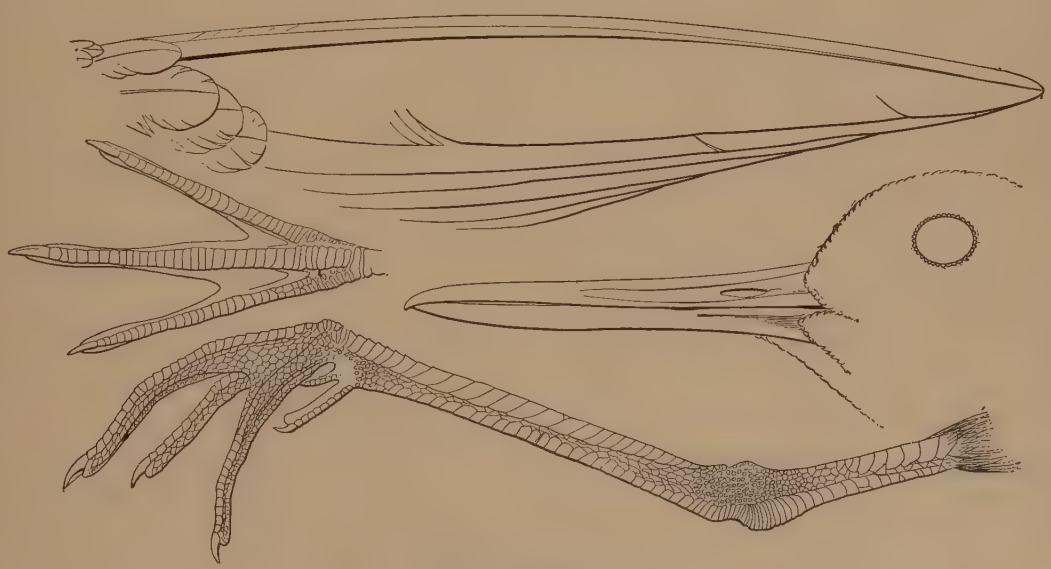
Limosa fedoa.



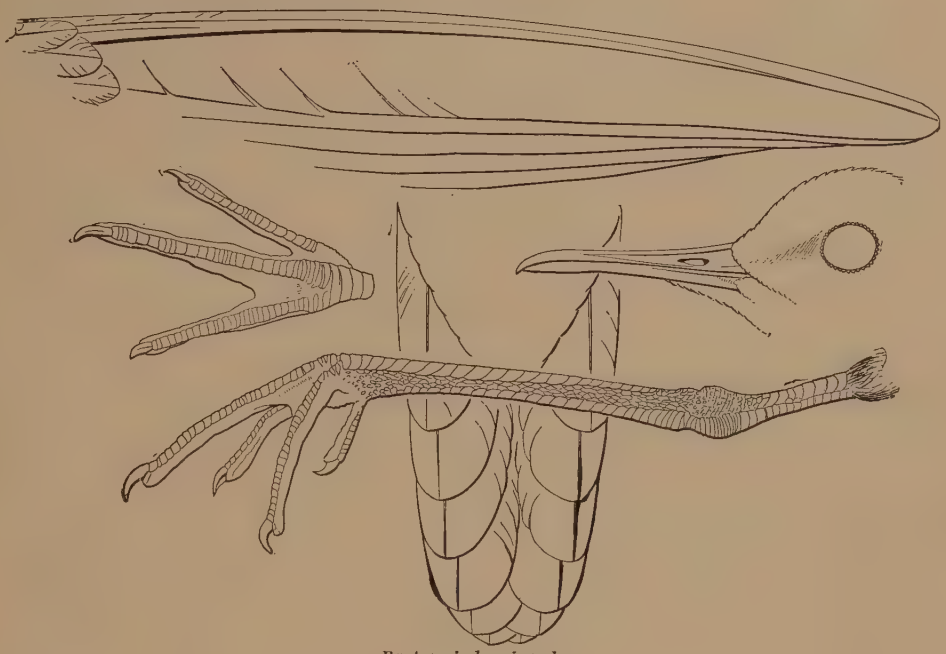
Calidris arenaria.

Totanus (Helodromas) solitarius.

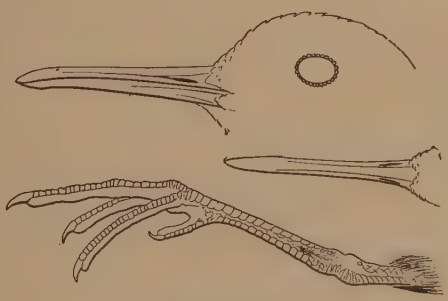
Totanus nebularius.



Symphemia semipalmata.



Bartramia longicauda.

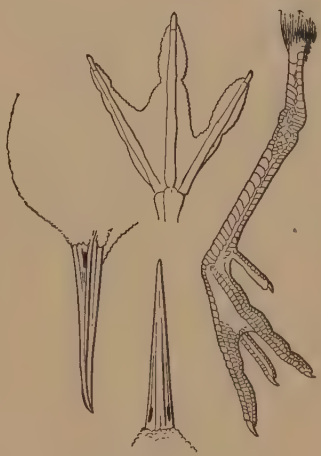


Actitis macularia.

Tryngites subruficollis.

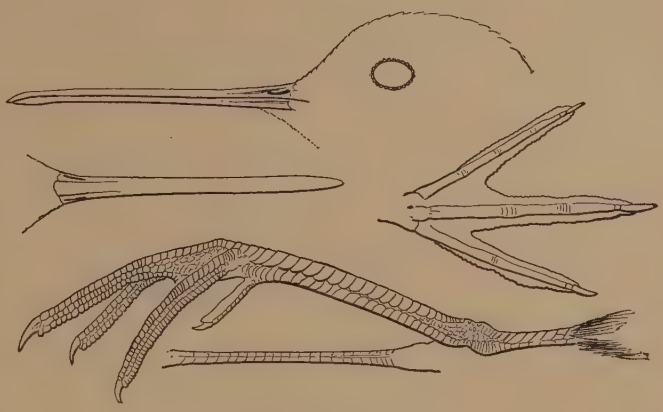
Recurvirostra americana.

Numenius borealis.

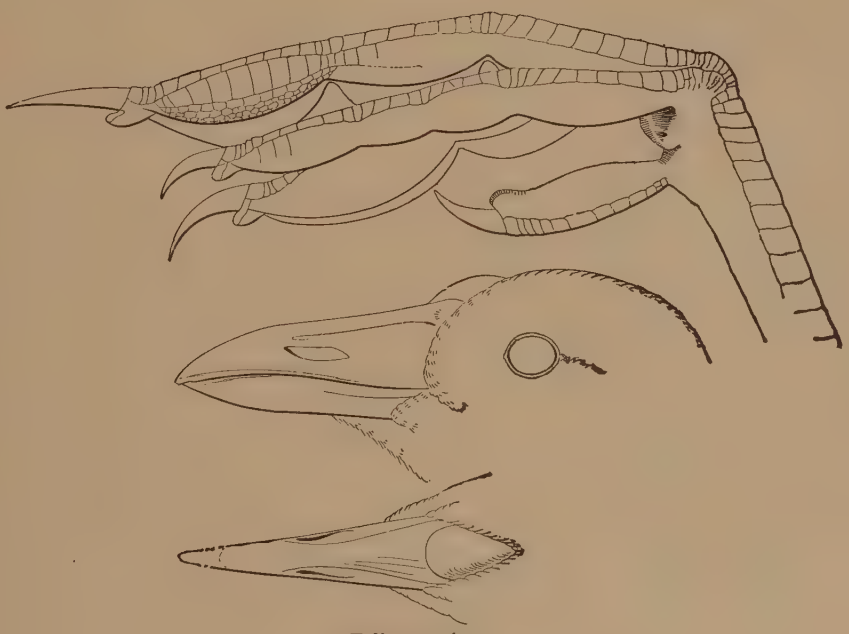


Phalaropus lobatus.

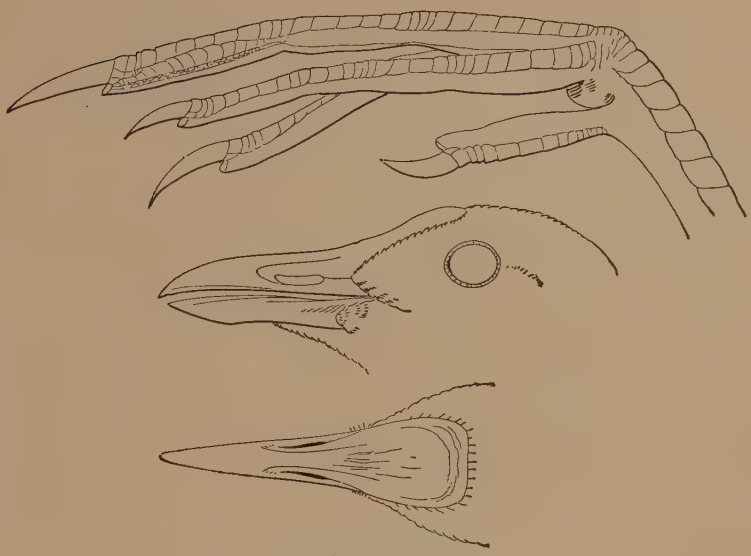
Crymophilus fulicarius.



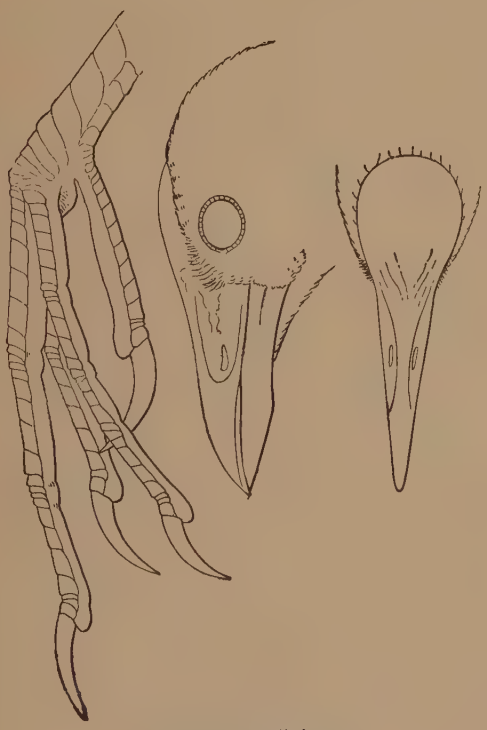
Phalaropus (Steganopus) tricolor.



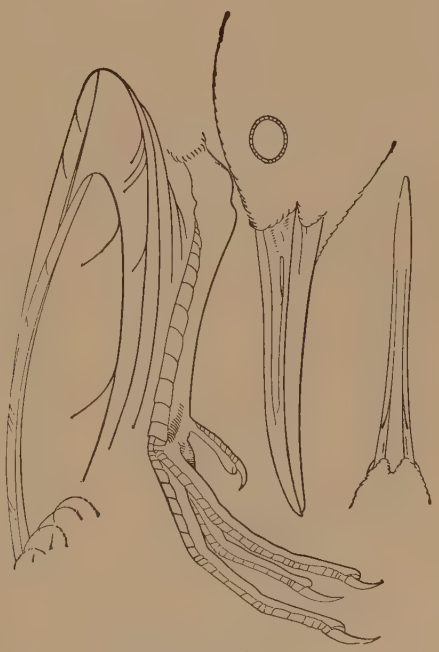
Fulica americana.



Gallinula galeata.



Ionornis martinica.

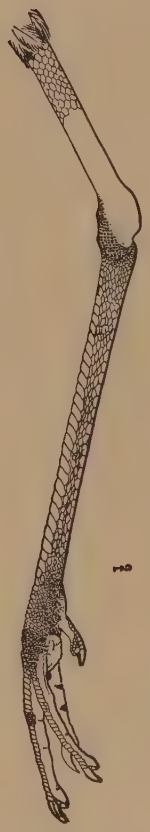


Rallus virginianu

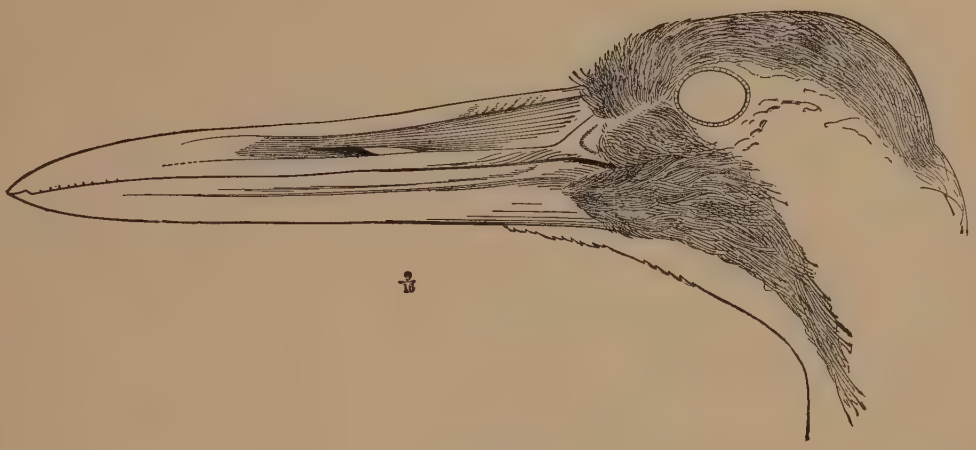
Porzana carolina.

Porzana (Coturnicops) noveboracensis.

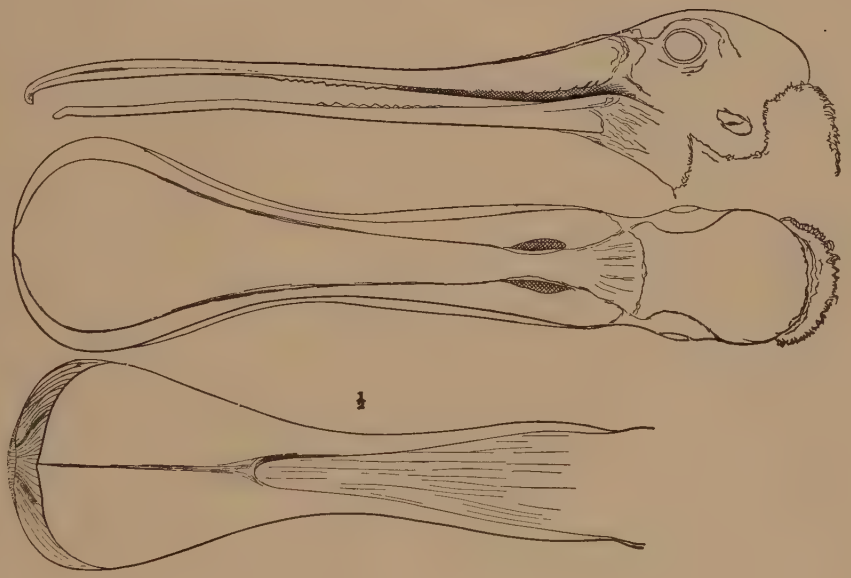
Porzana (Creciscus) jamaicensis.

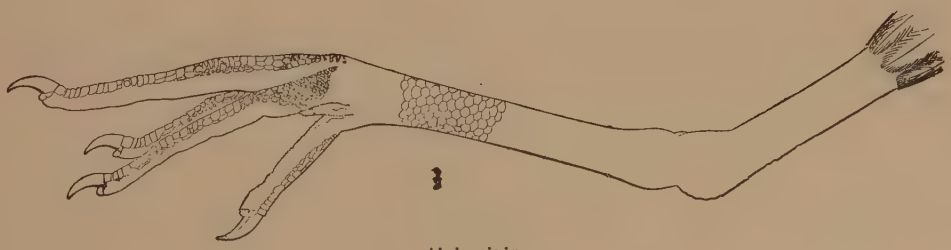


Grus americana.

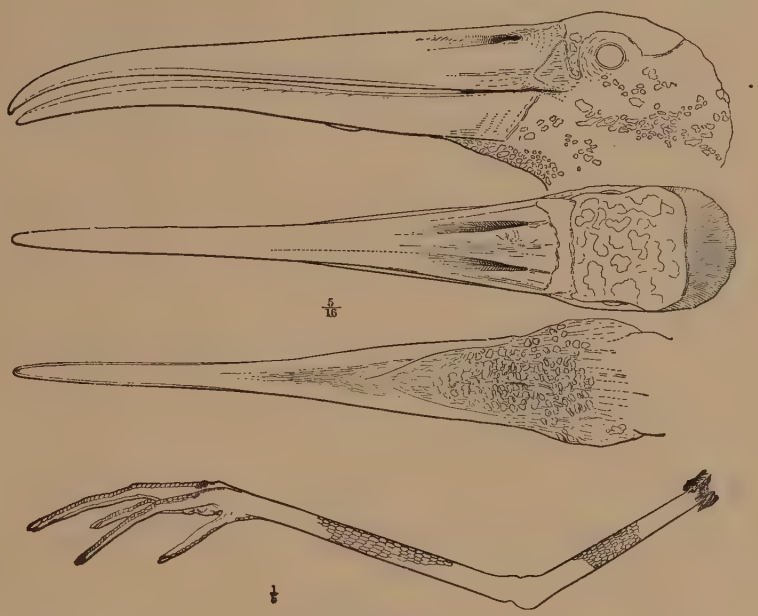


Grus americana.

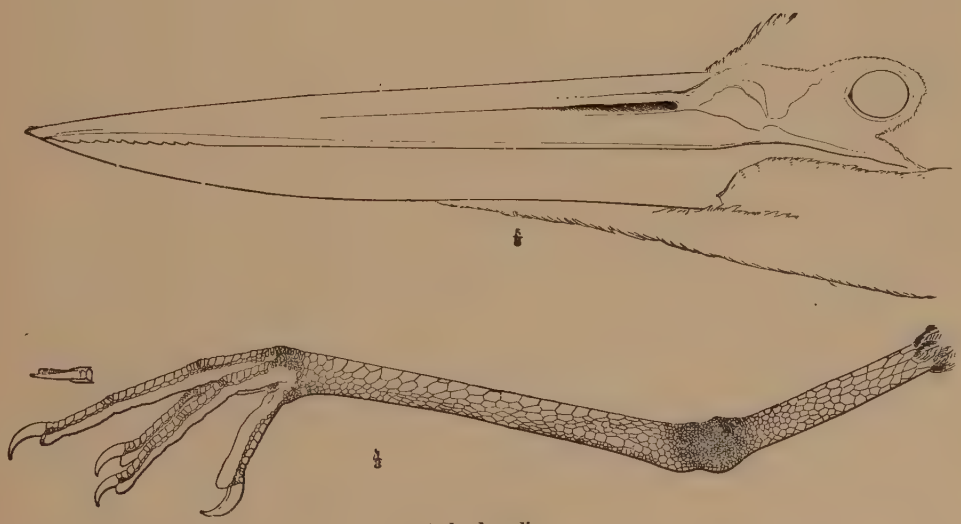




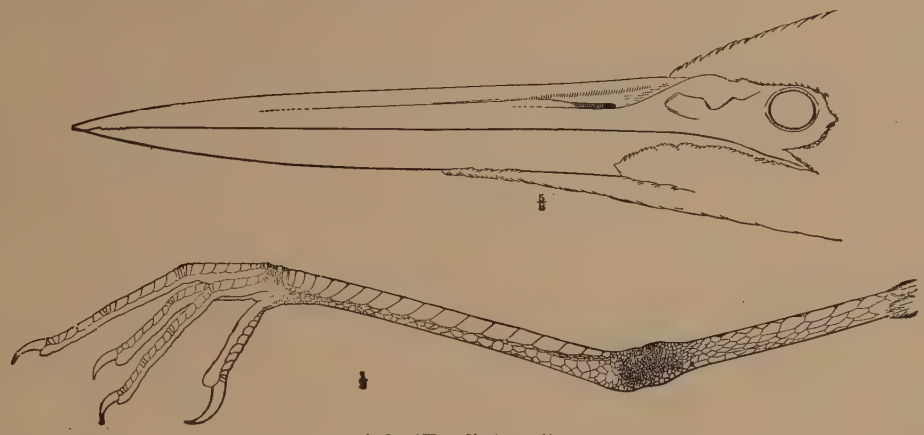
Ajaja ajaja.



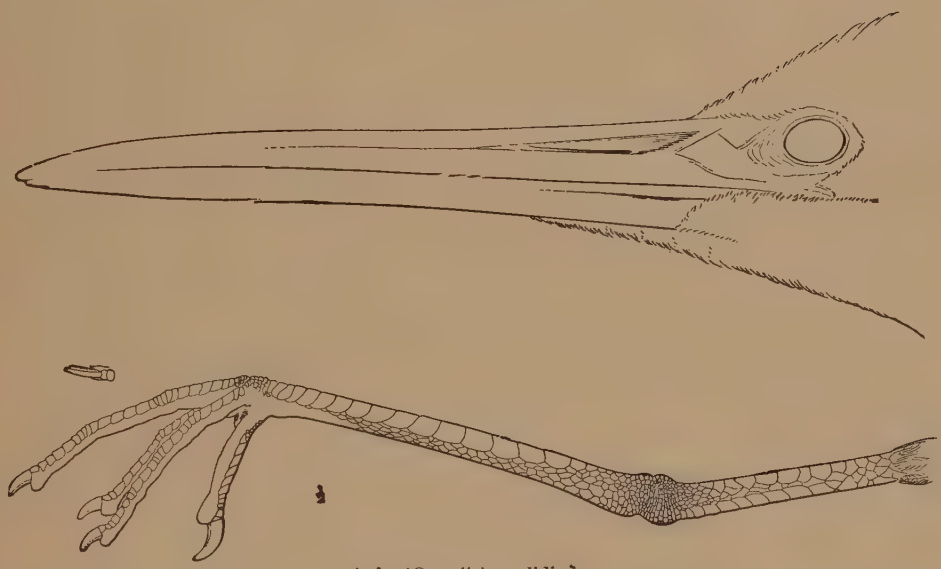
Tantalus loculator.



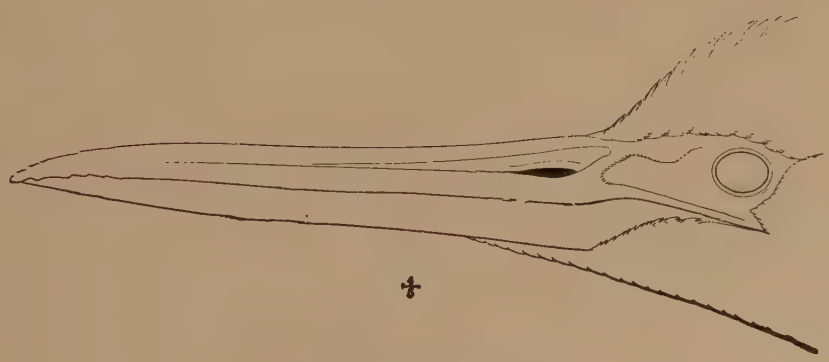
Ardea herodias.



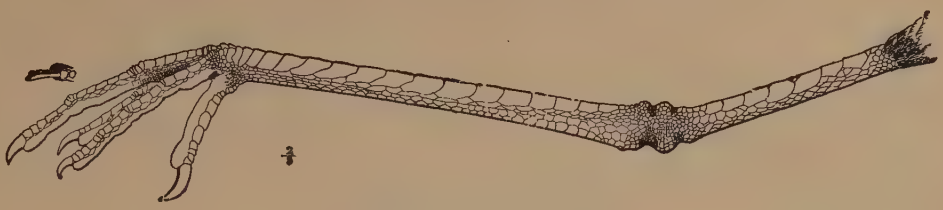
Ardea (Herodias) egretta.



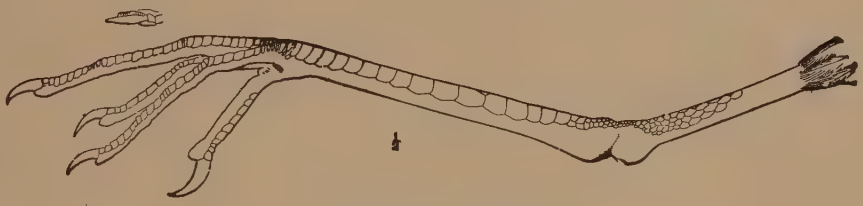
Ardea (Garzetta) candidissima.



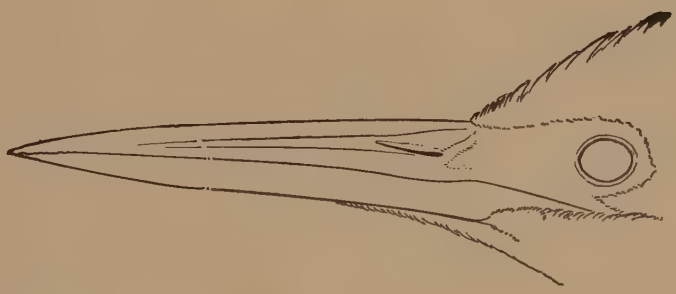
Ardea (Dichromanassa) rufescens.

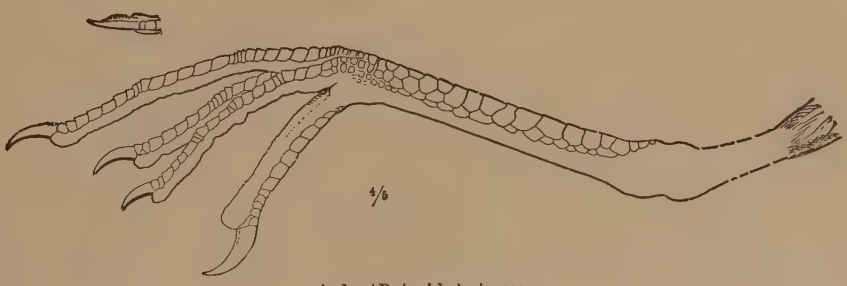


Ardea (Dichromanassa) rufescens.

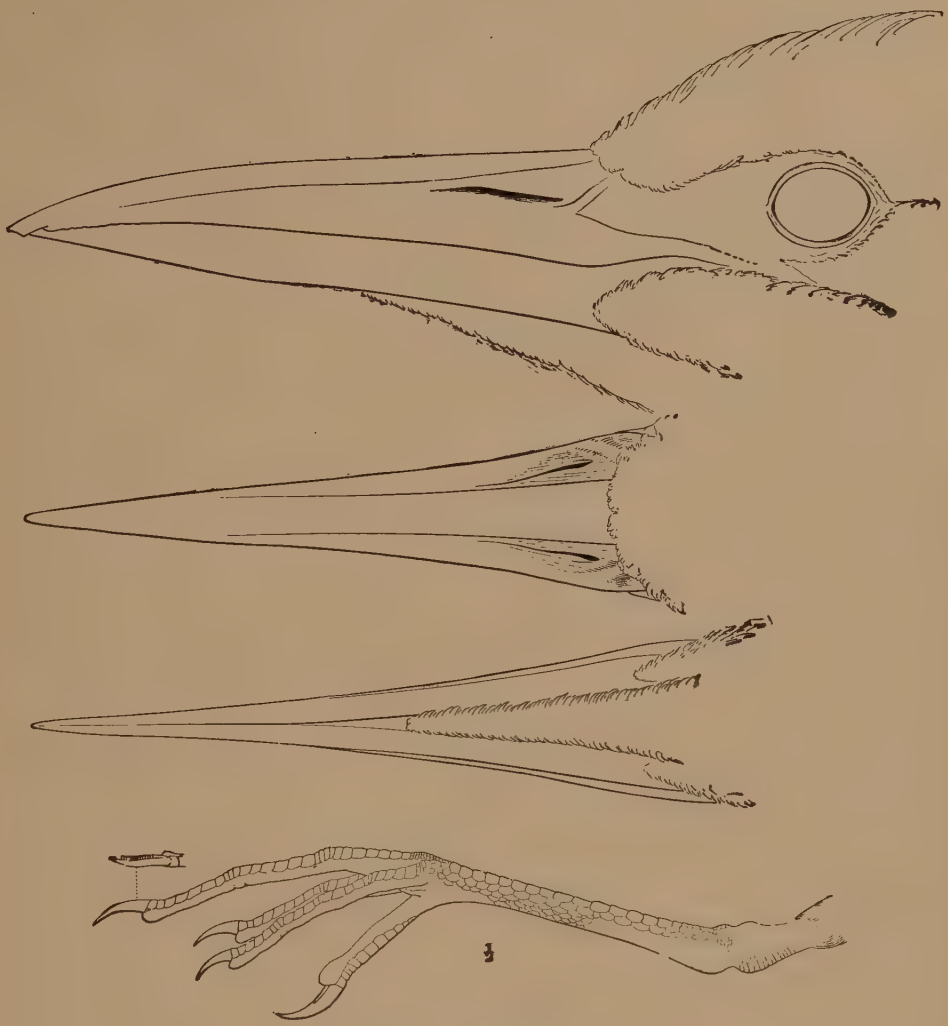


Ardea (Florida) cærulea.

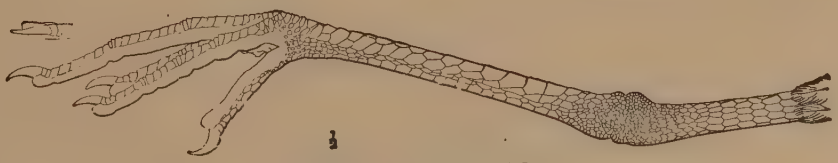




Ardea (Butorides) virescens.



Nycticorax nycticorax nævius.



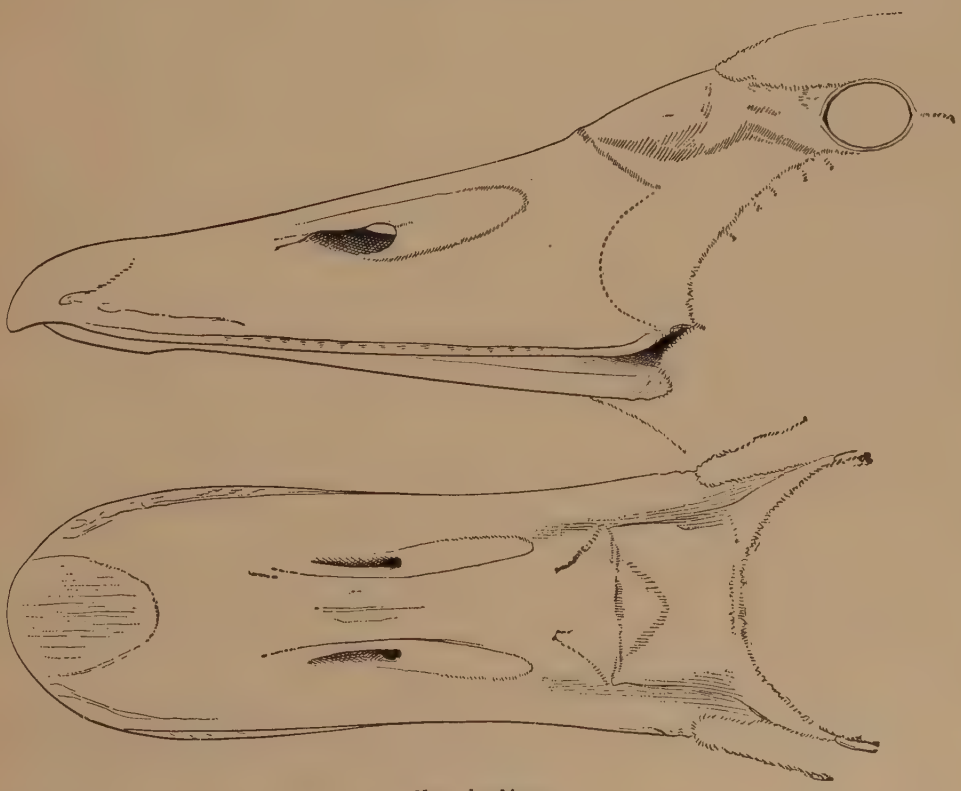
Nycticorax (Nycherodius) violaceus.

Nycticorax (Nyctanassa) violaceus.

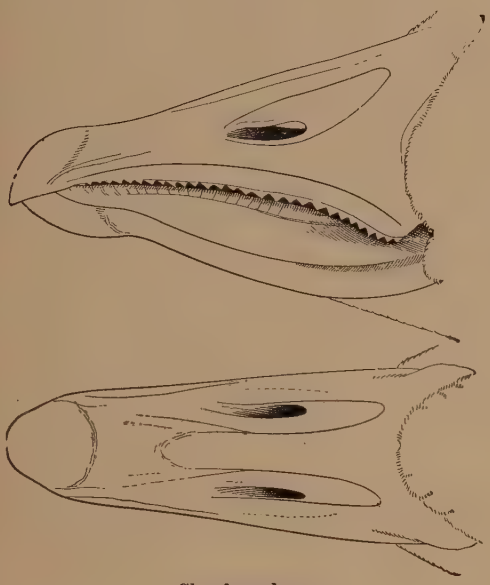
Botaurus lentiginosus.

Botaurus lentiginosus.

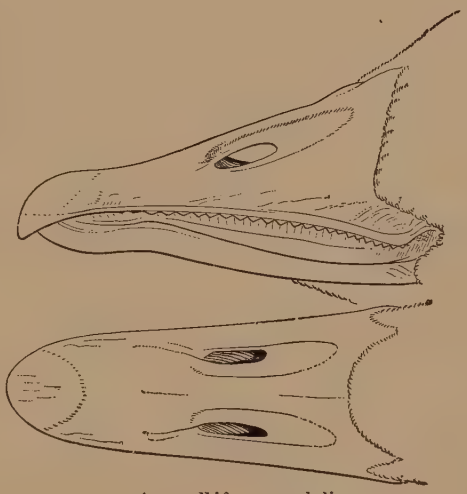
Botaurus (Ardetta) exilis.



Olor columbianus.

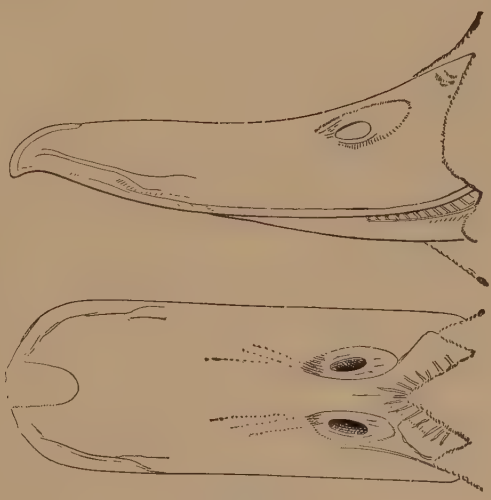


Chen hyperborea.

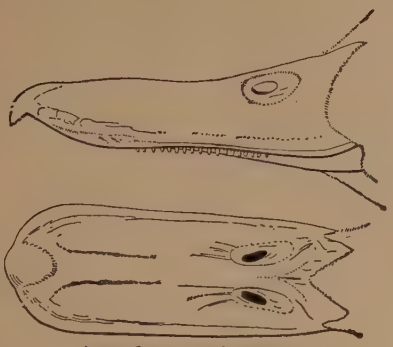


Anser albifrons gambeli.

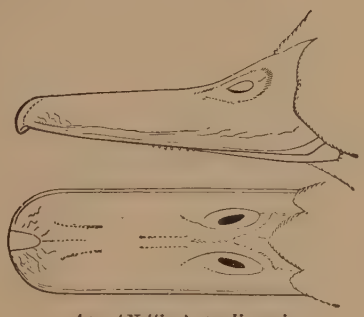
Branta canadensis minima.



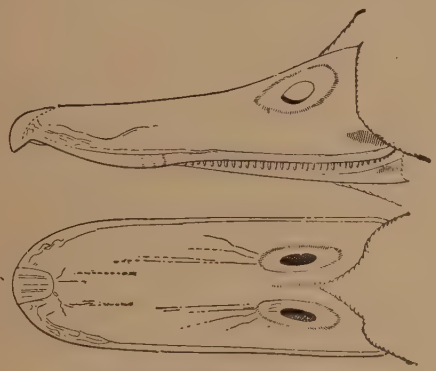
Anas boschas.



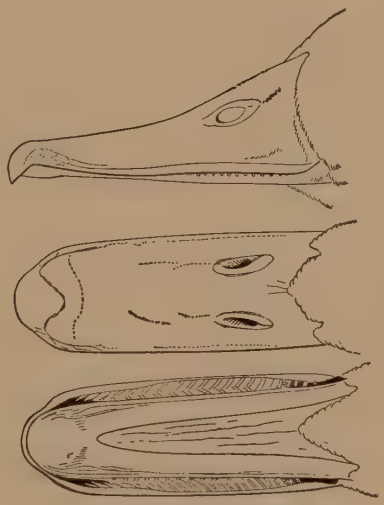
Anas (Querquedula) discors.



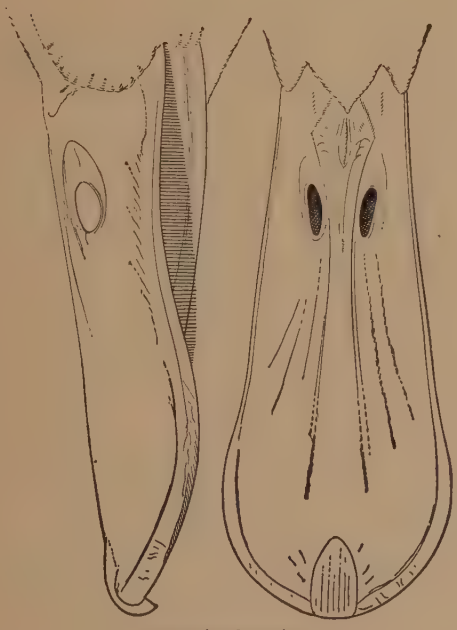
Anas (Nettion) carolinensis.



Anas (Chaulelasmus) strepera.



Anas (Mareca) americana.

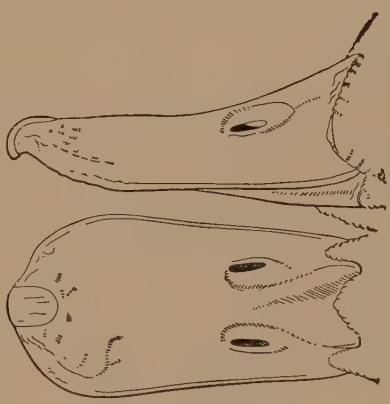


Spatula clypeata.

Dafila acuta.

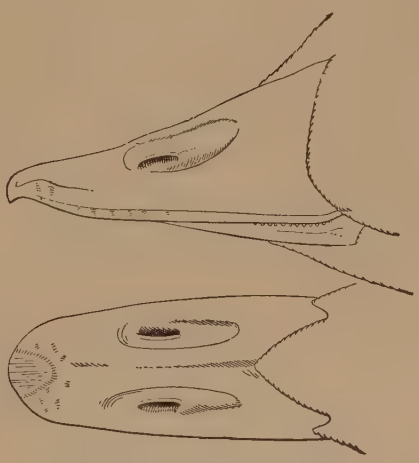
Aythya americana.

Aix sponsa.

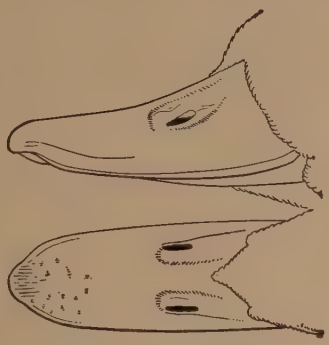


Aythya (Fuligula) marila.

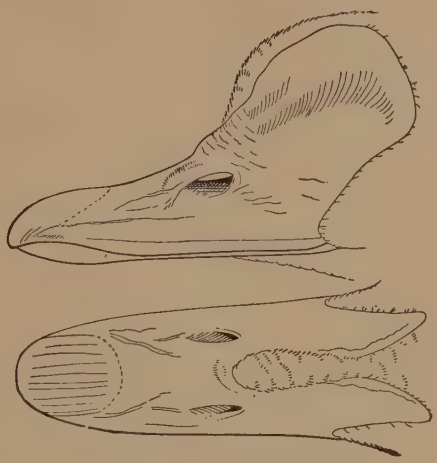
Aythya (Arietonetta) vallisneria.



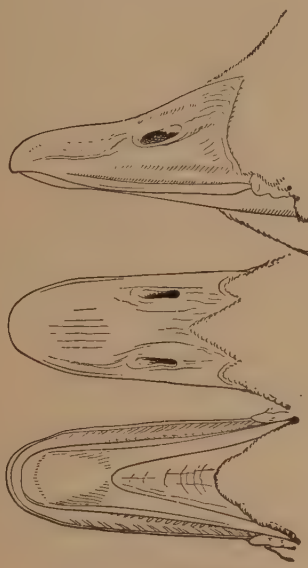
Glaucionetta clangula americana.



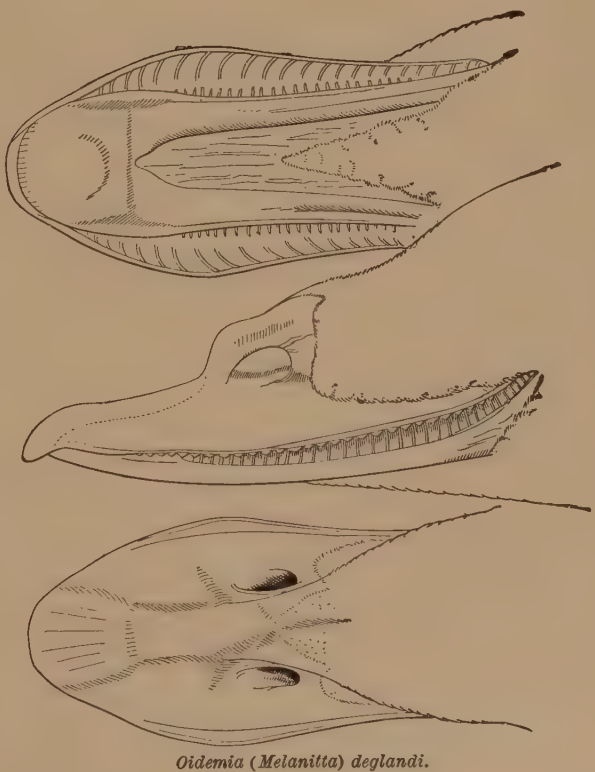
Charitonetta albeola.



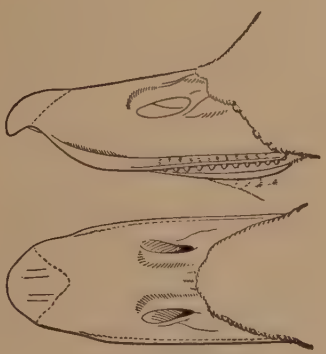
Somateria (Erionetta) spectabilis.



Histrionicus histrionicus.

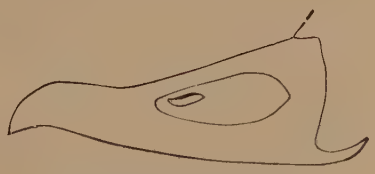


Oidemia (Melanitta) deglandi.

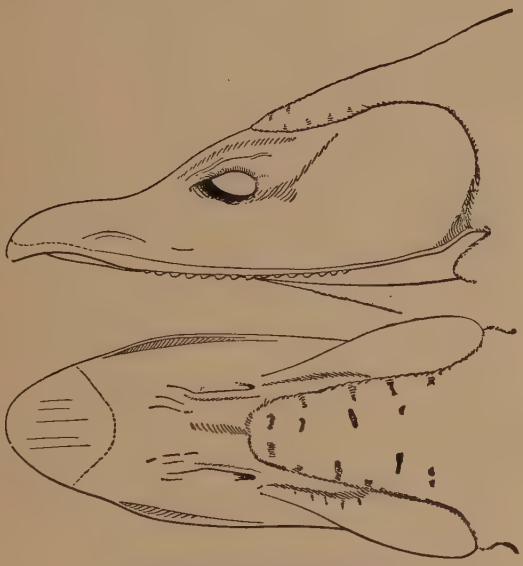


Clangula hyemalis.

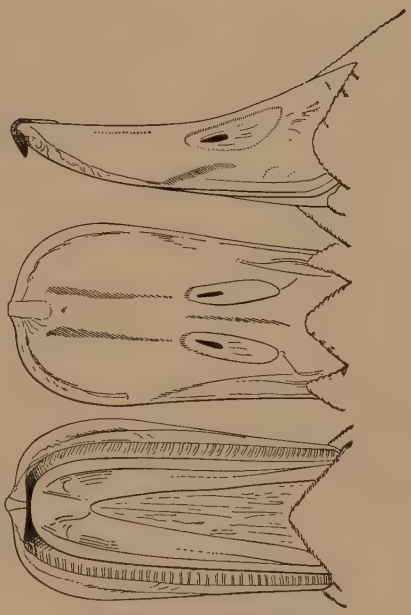
Oidemia nigra, female.



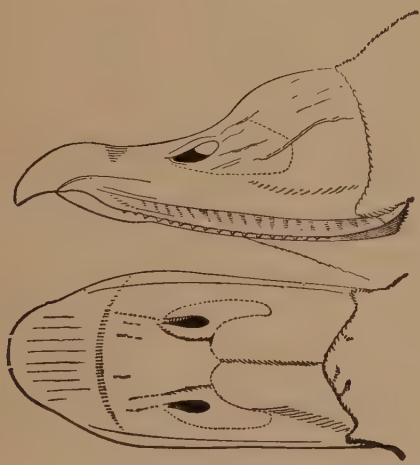
Oidemia americana, female.



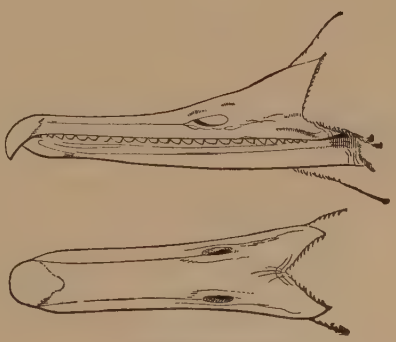
Oidemia (Pelionetta) perspicillata.



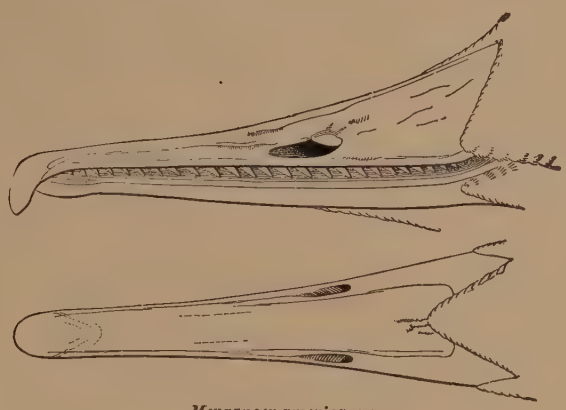
Erismatura rubida.



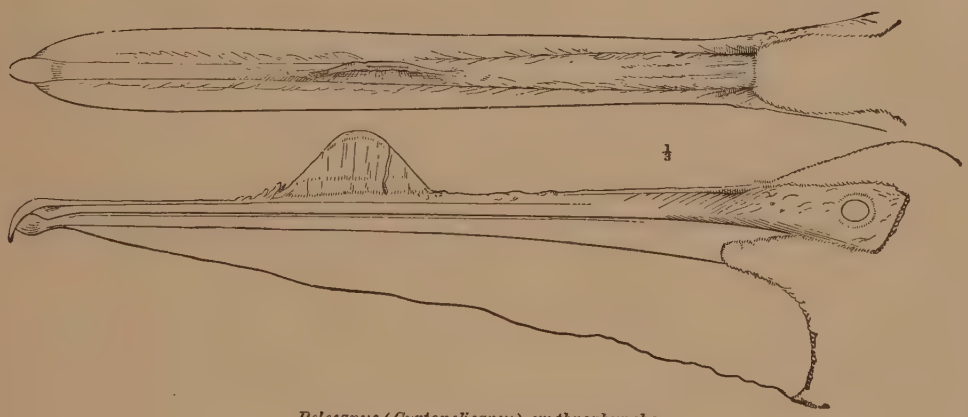
Oidemia americana.



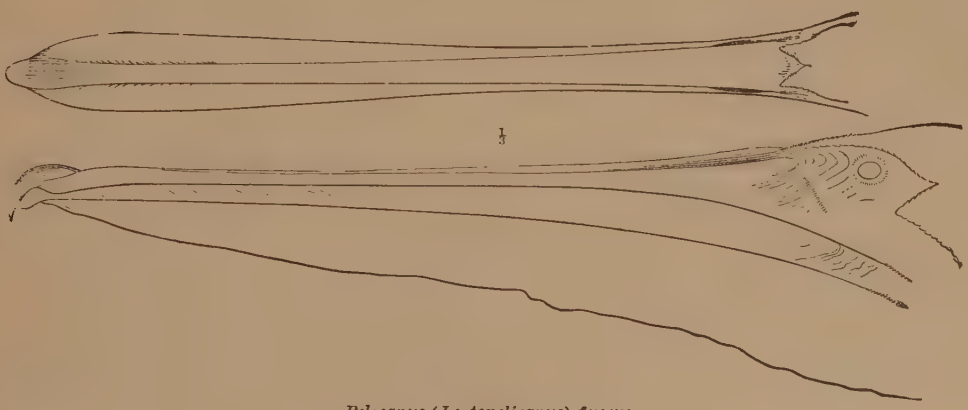
Lophodytes cucullatus.



Merganser americanus.



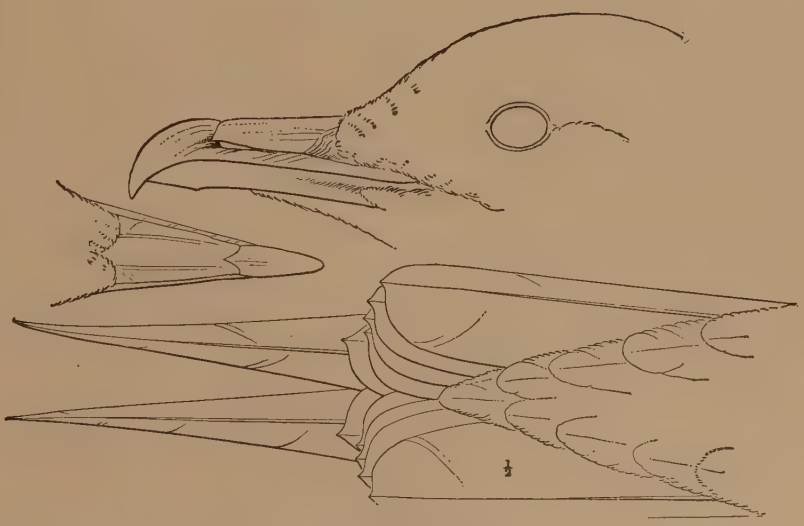
Pelecanus (Cyrtopelicanus) erythrorhynchos.



Pelecanus (Leptopelicanus) fuscus.

Megalestris skua.

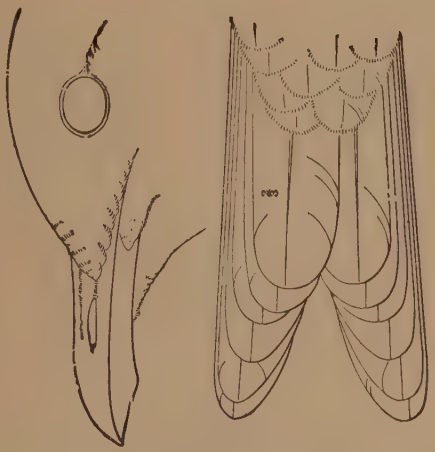
Anhinga anhinga.



Stercorarius parasiticus.

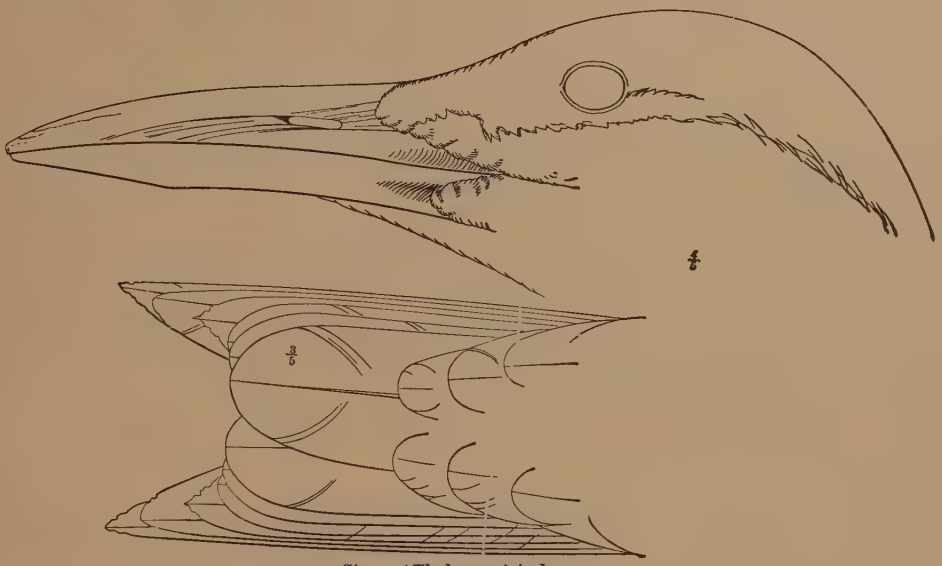
Rissa tridactyla.

Larus marinus.

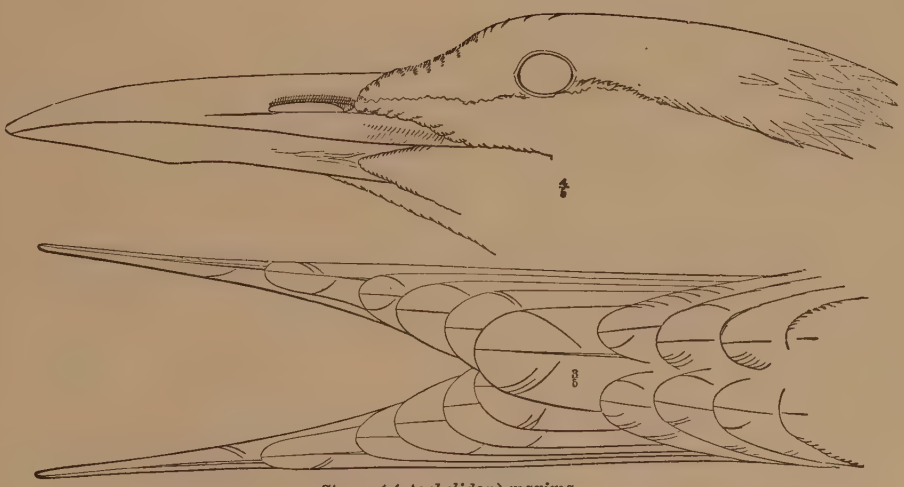


Xema sabinii.

Gelochelidon nilotica.

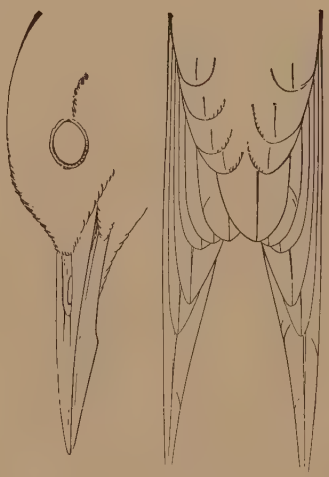


Sterna (Thalasseus) tschegrava.

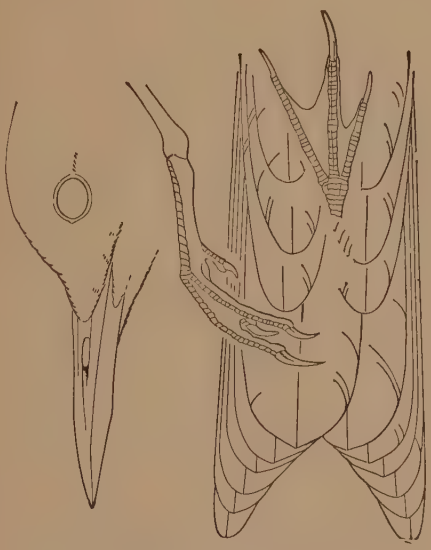


Sterna (Actochelidon) maxima.

Sterna hirundo.



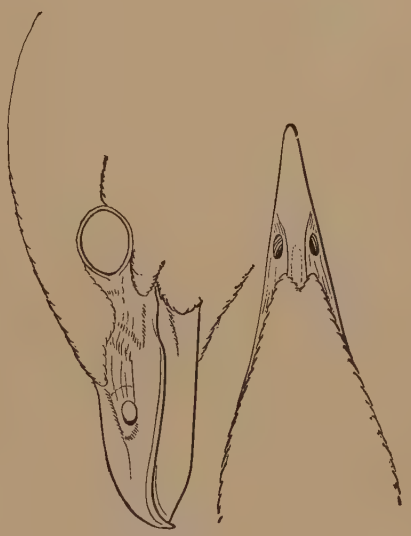
Sterna (Sternula) antillarum.



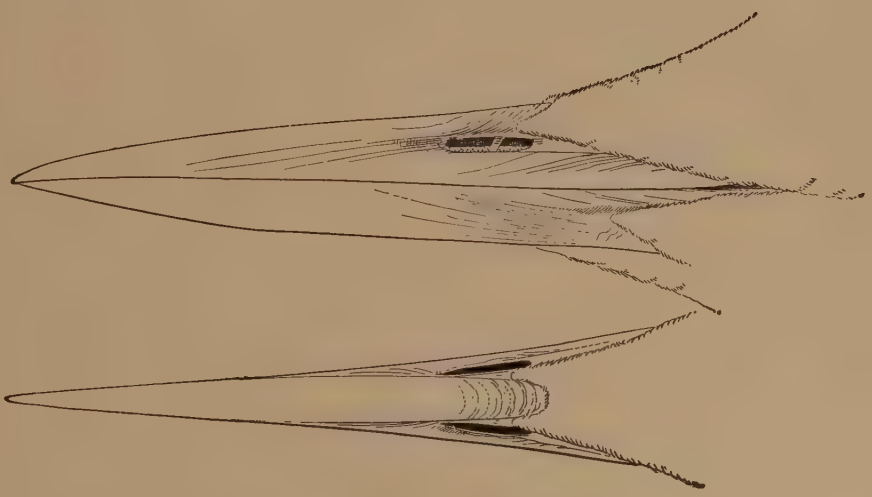
Hydrochelidon nigra surinamensis.

Colymbus holbœlli.

Colymbus (Dytes) californicus.



Podilymbus podiceps.



Urinator arcticus.